```
* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

 NEWS  1           Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2           "Ask CAS" for self-help around the clock
 NEWS  3  JUL 20   Powerful new interactive analysis and visualization software,
                   STN AnaVist, now available
 NEWS  4  AUG 11   STN AnaVist workshops to be held in North America
 NEWS  5  AUG 30   CA/CAplus -Increased access to 19th century research documents
 NEWS  6  AUG 30   CASREACT - Enhanced with displayable reaction conditions
 NEWS  7  SEP 09   ACD predicted properties enhanced in REGISTRY/ZREGISTRY
 NEWS  8  OCT 03   MATHDI removed from STN
 NEWS  9  OCT 04   CA/CAplus-Canadian Intellectual Property Office (CIPO) added
                   to core patent offices
 NEWS 10  OCT 06   STN AnaVist workshops to be held in North America
 NEWS 11  OCT 13   New CAS Information Use Policies Effective October 17, 2005
 NEWS 12  OCT 17   STN(R) AnaVist(TM), Version 1.01, allows the export/download
                   of CAplus documents for use in third-party analysis and
                   visualization tools
 NEWS 13  OCT 27   Free KWIC format extended in full-text databases
 NEWS 14  OCT 27   DIOGENES content streamlined
 NEWS 15  OCT 27   EPFULL enhanced with additional content

 NEWS EXPRESS  JUNE 13 CURRENT WINDOWS VERSION IS V8.0, CURRENT
               MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 13 JUNE 2005

 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
 NEWS LOGIN    Welcome Banner and News Items
 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that
specific topic.

  All use of STN is subject to the provisions of the STN Customer
  agreement.  Please note that this agreement limits use to scientific
  research.  Use for software development or design or implementation
  of commercial gateways or other similar uses is prohibited and may
  result in loss of user privileges and other penalties.

  * * * * * * * * * * * * * * STN  Columbus  * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 08:30:35 ON 31 OCT 2005

=> file caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     2.52       2.52

FILE 'CAPLUS' ENTERED AT 08:37:39 ON 31 OCT 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)
```

FILE COVERS 1907 - 31 Oct 2005 VOL 143 ISS 19
FILE LAST UPDATED: 30 Oct 2005 (20051030/ED)


```
=> s azide and (halide or fluoride or bromide or chloride or iodide)
         40516 AZIDE
          8453 AZIDES
         42884 AZIDE
                 (AZIDE OR AZIDES)
        149189 HALIDE
        124494 HALIDES
        216721 HALIDE
                 (HALIDE OR HALIDES)
        243148 FLUORIDE
         43914 FLUORIDES
        258477 FLUORIDE
                 (FLUORIDE OR FLUORIDES)
        256062 BROMIDE
         29294 BROMIDES
        269554 BROMIDE
                 (BROMIDE OR BROMIDES)
       1049962 CHLORIDE
        154349 CHLORIDES
       1120439 CHLORIDE
                 (CHLORIDE OR CHLORIDES)
        169314 IODIDE
         23765 IODIDES
        178938 IODIDE
                 (IODIDE OR IODIDES)
L1       11392 AZIDE AND (HALIDE OR FLUORIDE OR BROMIDE OR CHLORIDE OR IODIDE)

=> 1 and transition metal
1 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l1 and transition metal
        906033 TRANSITION
        249612 TRANSITIONS
       1014697 TRANSITION
                 (TRANSITION OR TRANSITIONS)
       1605806 METAL
        812964 METALS
       1948341 METAL
                 (METAL OR METALS)
        173986 TRANSITION METAL
                 (TRANSITION(W)METAL)
L2         162 L1 AND TRANSITION METAL
```

```
=> s l2 and dimethyl
        335450 DIMETHYL
            44 DIMETHYLS
        335473 DIMETHYL
                  (DIMETHYL OR DIMETHYLS)
L3          10 L2 AND DIMETHYL

=> d l3 1-10 all

L3   ANSWER 1 OF 10  CAPLUS  COPYRIGHT 2005 ACS on STN
```

Full Text | Citing References

```
AN   2004:161244  CAPLUS
DN   140:202430
ED   Entered STN:  27 Feb 2004
TI   Salts of pentacyclic or tetrapentalene derived anions, and their uses as
     ionic conductive materials
IN   Armand, Michel; Michot, Christophe; Gauthier, Michel; Choquette, Yves
PA   Hydro-Quebec, Can.; Centre National De La Recherche Scientifique (CNRS)
SO   Eur. Pat. Appl., 33 pp.
     CODEN: EPXXDW
DT   Patent
LA   French
IC   ICM  H01M006-16
     ICS  H01M010-40
CC   52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
     Section cross-reference(s): 27, 28, 29, 35, 76
FAN.CNT 5
```

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1391952	A2	20040225	EP 2003-292436	19971230
	R: DE, FR, GB, IT				
	CA 2194127	AA	19980630	CA 1996-2194127	19961230
	CA 2199231	AA	19980905	CA 1997-2199231	19970305
	EP 850933	A1	19980701	EP 1997-403188	19971230
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	EP 889863	A2	19990113	EP 1997-951051	19971230
	EP 889863	B1	20030507		
	R: DE, FR, GB, IT				
	EP 890176	A1	19990113	EP 1997-951052	19971230
	EP 890176	B1	20010620		
	R: DE, FR, GB, IT				
	JP 2000508114	T2	20000627	JP 1998-529517	19971230
	JP 2000508346	T2	20000704	JP 1998-529516	19971230
	JP 2000508676	T2	20000711	JP 1998-529514	19971230
	JP 2000508677	T2	20000711	JP 1998-529515	19971230
	JP 2000508678	T2	20000711	JP 1998-529518	19971230
	JP 2002514245	T2	20020514	JP 1998-529513	19971230
	US 6120696	A	20000919	US 1998-125792	19980828
	US 6171522	B1	20010109	US 1998-101811	19981119
	US 6333425	B1	20011225	US 1998-101810	19981119
	US 6228942	B1	20010508	US 1998-125798	19981202
	US 6395367	B1	20020528	US 1998-125799	19981202
	US 6319428	B1	20011120	US 1998-125797	19981203
	US 6365068	B1	20020402	US 2000-609362	20000630
	US 6576159	B1	20030610	US 2000-638793	20000809
	US 2001024749	A1	20010927	US 2001-826941	20010406
	US 6506517	B2	20030114		
	US 2002009650	A1	20020124	US 2001-858439	20010516

	US 2002102380	A1	20020801	US 2002-107742	20020327
	US 6835495	B2	20041228		
	US 2003052310	A1	20030320	US 2002-253035	20020924
	US 2003066988	A1	20030410	US 2002-253970	20020924
	US 2005074668	A1	20050407	US 2004-789453	20040227
	US 2005123831	A1	20050609	US 2004-926283	20040825
PRAI	CA 1996-2194127	A	19961230		
	CA 1997-2199231	A	19970305		
	EP 1997-403188	A3	19971230		
	WO 1997-CA1008	W	19971230		
	WO 1997-CA1009	W	19971230		
	WO 1997-CA1010	W	19971230		
	WO 1997-CA1011	W	19971230		
	WO 1997-CA1012	W	19971230		
	WO 1997-CA1013	W	19971230		
	US 1998-101810	A3	19981119		
	US 1998-101811	A3	19981119		
	US 1998-125798	A3	19981202		
	US 1998-125799	A3	19981202		
	US 1998-125797	A1	19981203		
	US 2000-638793	A1	20000809		
	US 2001-858439	A1	20010516		
	US 2002-107742	A1	20020327		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1391952	ICM	H01M006-16
	ICS	H01M010-40
EP 1391952	ECLA	B01J031/04; C07D231/18; C07D233/90; C07D249/04; C07D249/10; C07D249/12; C07D307/54; C07D311/52; C07D311/58; C07D311/82; C07D333/16; C07D333/24; C07D405/06+303+249B; H01B001/12F
CA 2194127	ECLA	B01J031/02E2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/16E3; H01M006/18B; H01M006/18C2; H01M010/40B; H01M010/40E3; H01M010/40L2
CA 2199231	ECLA	B01J031/02E2; C07D417/14+285+277+277; C07D417/14+285+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/16E3; H01M006/18B; H01M006/18C2; H01M010/40B; H01M010/40E3; H01M010/40L2; B01J031/04; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04;

		C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27
EP 850933	ECLA	B01J031/02E2; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; B01J031/04; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553
US 6120696	NCL	252/062.200; 359/265.000; 359/270.000
	ECLA	B01J031/02E2; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; B01J031/04; H01M006/16E3; H01M006/18B; H01M006/18C2; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24
US 6171522	NCL	252/500.000; 252/062.200; 345/049.000; 359/265.000; 429/188.000; 429/199.000; 429/324.000; 502/102.000; 502/300.000; 502/302.000; 549/014.000; 549/357.000
	ECLA	B01J031/02E2; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34;

		C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; B01J031/04; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03
US 6333425	NCL	558/167.000; 534/838.000; 546/096.000; 546/256.000; 548/300.100; 548/340.100; 558/386.000; 558/440.000; 558/453.000
	ECLA	B01J031/02E2; B01J031/04; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10
US 6228942	NCL	525/183.000; 252/511.000; 428/367.000; 524/495.000; 524/496.000; 525/066.000; 525/263.000
	ECLA	B01J031/02E2; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; B01J031/04; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03
US 6395367	NCL	428/064.800; 359/265.000; 429/188.000; 429/324.000; 430/541.000; 430/926.000; 548/262.200; 548/267.800; 548/268.200
	ECLA	B01J031/02E2; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03;

		C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; B01J031/04; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00
US 6319428	NCL	252/500.000; 029/623.100; 361/327.000; 429/199.000; 429/200.000; 429/245.000; 564/096.000; 564/098.000; 568/027.000
	ECLA	B01J031/02E2; H01M010/40L2; B01J031/04; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D
US 6365068	NCL	252/500.000; 252/062.200; 345/049.000; 359/265.000; 429/188.000; 429/199.000; 502/102.000; 502/300.000; 502/302.000; 549/014.000
	ECLA	B01J031/02E2; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; B01J031/04; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553

US 6576159	NCL	252/511.000; 252/062.200; 252/500.000; 252/510.000; 252/518.100; 252/519.200; 252/519.300; 429/188.000; 546/256.000; 548/300.100; 556/001.000; 556/143.000; 558/167.000; 558/440.000; 558/453.000
	ECLA	B01J031/02E2; B01J031/04; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D
US 2001024749	NCL	429/122.000
	ECLA	B01J031/02E2; H01M010/40L2; B01J031/04; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D
US 2002009650	NCL	429/314.000
	ECLA	B01J031/02E2; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22;

		C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D
US 2002102380	NCL	428/064.800
	ECLA	B01J031/02E2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2
US 2003052310	NCL	252/500.000
	ECLA	B01J031/02E2; B01J031/04; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D
US 2003066988	NCL	252/500.000
	ECLA	B01J031/02E2; B01J031/04; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34;

C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12

US 2005074668 NCL 429/199.000

ECLA B01J031/02E2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2

US 2005123831 NCL 429/188.000

ECLA B01J031/02E2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2

AB This invention describes ionic compds. where the anionic charge is delocalized. One compd. of the invention contains an anionic part assocd. with at least one mono- or multivalent cationic part Mm+, in a no. sufficient to ensure electronic neutrality of the material. M can be a hydronium, nitrosyl NO+, an ammonium NH4+, a metallic cation with valence m, an org. cation having a valence m, or an organometallic cation having valence m. The anionic charge is carried by a new pentacyclic moiety or deriv. of tetrapentalene carrying electroattractive substituents. The compds. are used notably for ionic conduction, electronic conductors, dyes and colorants, and catalysts for diverse chem. reactions. They can also be used as electrolytes in fuel cells and batteries.

ST pentacyclic tetrapentalene salt charge delocalized anion ionic conduction; alkali alk earth **transition metal** salt heterocyclic electrolyte polymer; electrochem cell fuel polyelectrolyte cond soly catalysis fluoropolymer polysiloxane

IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(5-membered ring- contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Spinel-type crystals
(LiyMn1-xMxO2, pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polymerization
(anionic; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Solvents
(aprotic, title compds. sol. in; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polymers, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(block, ethylene oxide, propylene oxide, allyl glycidyl ether; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Optical absorption
(by polymer electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Carbon black, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(composite electrodes with soft polymer or LiCoO2 and polymer gel electrolytes, or with acetylene black, VO2 and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Ethers, uses
RL: NUU (Other use, unclassified); USES (Uses)
(cyclic, solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polysiloxanes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(di-Me, Me hydrogen, a trimethylsilyl-terminated polysiloxane; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Lithiation
(during battery operation; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polyoxyalkylenes, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(electrolyte complexes with lithium salts, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Substituent effects
(electronic, electron-withdrawing substituents; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polyoxyalkylenes, uses
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(esters, esters of dicarboxylic acid-substituted 1,2,3-triazole salts; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(five-membered, arom., with combinations of N, S, P in ring, anions of;

salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polysiloxanes, uses
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fluorine-contg., reaction products; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polysiloxanes, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(fluorine-contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Aromatic hydrocarbons, preparation
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(halo, anions contg. 5-membered rings; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); USES (Uses)
(halo, solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Cyano group
(ionic compds. contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Phosphates, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(iron, manganese, and lithium -contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Textiles
(laminated, polyelectrolyte composite membrane perfluorinated sulfonylpyrazole-contg. polymer; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(nitrogen, five-membered, arom., anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Open circuit potential
(of dye-sensitized solar cells with imidazolium-triazole-**iodide** electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Ionic conductivity
(of lithium salts in polymer electrolytes and polymer gel electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Cyclic voltammetry
(of secondary battery cells with polymer gel electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polysulfides
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(org., pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Cations
(org.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT **Fluorides**, uses
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(org.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Azines
Group VA element compounds
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(phosphazines, polymers, "solvents" for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(phosphorus, arom., five-membered, anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Polar solvents
(polymeric; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Vinyl compounds, uses
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymers; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Polyurethanes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, polyethylene glycol- based, "solvents" for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Fluoropolymers, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(polysiloxane-; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Olivine-group minerals
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Secondary batteries
(salts of pentacyclic or tetrapentalene derived anions for use in; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
IT Aldol condensation catalysts
Antistatic agents
Coloring materials
Corrosion inhibitors
Dyes
Electron delocalization
Esterification
Friedel-Crafts reaction catalysts
Fuel cell separators

Heterojunction solar cells
Ionic liquids
Michael reaction catalysts
Plasticizers
Polyelectrolytes
Polymer electrolytes
Polymerization catalysts
Solubility
Substitution reaction, nucleophilic
Surfactants
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Alkali metal salts
Transition metal salts
RL: DEV (Device component use); PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Fluoropolymers, uses
Polyanilines
Salts, uses
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Quaternary ammonium compounds, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polysiloxanes, uses
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Alkaline earth salts
Rare earth salts
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Organometallic compounds
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(salts with organometallic cations; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Nitroso compounds
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(salts; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Electric current
(short circuit; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Phosphates, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(silico-, iron, manganese, and lithium -contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Fluoropolymers, uses
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(siloxane-, reaction products; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Ethers, uses
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Amides, uses
Nitrates, uses
Nitriles, uses
Sulfamides
Sulfones
RL: NUU (Other use, unclassified); USES (Uses)
(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Diels-Alder reaction catalysts
(stereoselective; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(sulfur, arom., five-membered, anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Aromatic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(sulfur, heterocyclic, five-membered, anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Cations
(trivalent, metal salts; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 75-21-8D, Ethylene oxide, block polyoxyalkylene copolymers contg.
75-56-9D, Propylene oxide, block polyoxyalkylene copolymers contg.
106-92-3D, Allylglycidyl ether, block polyoxyalkylene copolymers contg.
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
("solvents" for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-43-4P
RL: CAT (Catalyst use); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(Aldol condensation catalyst; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 280-57-9, 1,4-Diazabicyclo[2.2.2]octane
RL: RCT (Reactant); RACT (Reactant or reagent)
(DABCO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210469-99-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(a dye; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661467-43-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(an antistatic surfactant; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 12036-21-4, Vanadium dioxide
RL: DEV (Device component use); USES (Uses)
(battery electrode composites with acetylene black and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210469-97-9P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(composite electrodes with LiCoO2 and carbon black; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-60-5DP, polyaniline doped with
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(conductor and corrosion inhibitor; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7439-89-6, Iron, properties
RL: PRP (Properties)
(corrosion of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 1314-35-8, Tungsten trioxide, uses 202847-01-6, Hydrogen iridium oxide
RL: DEV (Device component use); USES (Uses)
(electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 25322-68-3, Polyethylene oxide
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(electrolyte complexes with lithium salts, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-62-6P
RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(electrolyte, ionic liq.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210470-02-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(electropolymd.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(in electrochem. cells, and corrosion of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: PRP (Properties)
(in gel polymer electrolyte; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 107-13-1, Acrylonitrile, reactions
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(in gel polymer electrolyte; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 110-86-1D, Pyridine, anionic derivs.
RL: DEV (Device component use); TEM (Technical or engineered material

use); USES (Uses)
(including photosensitizing dyes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 2923-16-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(made by Parish, see pg. 13; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 13463-67-7, Titanium dioxide, uses
RL: DEV (Device component use); USES (Uses)
(nanoparticles; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7439-93-2D, Lithium, alloys
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(neg. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-63-8P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(photoinitiator; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-59-1P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(polyelectrolyte composite membrane with GoreTex and Friedel-Crafts catalyst; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 1317-37-9, Iron sulfide (FeS) 10028-22-5, Iron sulfate (Fe2(SO4)3) 11099-11-9, Vanadium oxide 12068-85-8, Iron disulfide (FeS2) 12423-04-0, Lithium vanadium oxide (LiV3O8) 61179-01-9, Aluminum lithium manganese oxide 131344-56-4, Cobalt lithium nickel oxide 133782-19-1, Lithium manganese vanadium oxide 162684-16-4, Lithium manganese nickel oxide 204450-96-4, Chromium lithium manganese oxide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-54-7P
RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(pure and polymer electrolytes with polyethylene oxide; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 110-86-1, Pyridine, uses 865-47-4 5264-33-5 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 7664-93-9, Sulfuric acid, uses 16941-12-1, Chloroplatinic acid
RL: CAT (Catalyst use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7580-67-8, Lithium hydride
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7553-56-2, Iodine, uses 141460-19-7, N 3 Dye 178631-05-5
RL: DEV (Device component use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 9003-07-0, Polypropylene
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PYP (Physical process); PROC (Process); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-36-4P 661461-40-1P 661461-42-3P 661461-49-0P 661461-50-3P 661461-64-9P 661467-44-3P
RL: DEV (Device component use); PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 13968-08-6DP, Hydronium, salts
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 289-06-5D, Thiadiazole, anionic derivs. 289-95-2D, Pyrimidine, anionic derivs. 290-37-9D, Pyrazine, anionic derivs. 7439-93-2, Lithium, uses 11120-54-0D, Oxadiazole, anionic derivs.
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 124-38-9, Carbon dioxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7447-40-7, Potassium **chloride**, reactions
RL: FMU (Formation, unclassified); RCT (Reactant); REM (Removal or disposal); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 554-68-7, Triethylammonium **chloride** 2624-17-1, Sodium isocyanurate 4128-37-4 7492-68-4, Copper carbonate 7727-37-9, Nitrogen, processes 14075-53-7, Potassium tetrafluoroborate 63872-66-2, 1,4-Diazabicyclo[2.2.2]octane, hydrochloride
RL: FMU (Formation, unclassified); REM (Removal or disposal); FORM (Formation, nonpreparative); PROC (Process)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 56664-66-5
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 123-91-1, Dioxane, uses 7487-88-9, Magnesium sulfate, uses
RL: NUU (Other use, unclassified); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 75-38-7D, Vinylidene difluoride, derivs., polymers of 80-62-6D, Methyl methacrylate, derivs., polymers of 88-12-0D, derivs., polymers of 107-13-1D, Acrylonitrile, derivs., polymers of
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-57-9P
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-51-3P
RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-51-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 67-56-1, Methanol, uses
RL: PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210469-91-3P 661461-52-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210470-01-2P
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 709-62-6P 7343-34-2P, 3,5-**Dimethyl**-1H-1,2,4-triazole
25979-00-4P 210289-29-5P 210289-38-6P 210289-49-9P 210289-52-4P
210469-88-8P 210469-95-7P 661461-45-6P 661461-57-0P 661461-60-5P
RL: PUR (Purification or recovery); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 100-06-1P, p-Acetylanisole 210289-48-8P 661461-44-5P 661461-53-6P
661461-55-8P 661461-56-9P 661467-37-4P
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 76-05-1, reactions 78-94-4, Methyl vinyl ketone, reactions 94-41-7
98-88-4, Benzoyl **chloride** 100-52-7, Benzaldehyde, reactions
100-66-3, Anisole, reactions 102-52-3, 1,1,3,3-Tetramethoxypropane
106-20-7, Di-2-ethylhexylamine 108-24-7, Acetic anhydride 109-72-8,
Butyllithium, reactions 110-61-2, Succinic dinitrile 112-76-5, Stearic acid **chloride** 121-44-8, Triethylamine, reactions 143-33-9,
Sodium cyanide 144-55-8, Sodium bicarbonate, reactions 303-04-8,
2,3-Dichloro-Hexafluoro-2-butene 326-90-9, 4,4,4-Trifluoro-1-(2-furyl)-1,3-butanedione 326-91-0 375-72-4, Perfluorobutanesulfonyl **fluoride** 407-38-5, 2,2,2-Trifluoroethyl trifluoroacetate
421-83-0, Trifluoromethanesulfonyl **chloride** 497-19-8, Sodium carbonate, reactions 538-75-0, Dicyclohexylcarbodiimide 542-92-7,
Cyclopentadiene, reactions 554-13-2, Lithium carbonate 584-08-7,
Potassium carbonate 676-58-4, Methylmagnesium **chloride**
677-25-8, Ethenesulfonyl **fluoride** 692-50-2 693-13-0,
1,3-Diisopropylcarbodiimide 764-93-2, 1-Decyne 765-12-8, Triethylene

glycol divinyl ether 917-70-4, Lanthanum acetate 937-14-4, 3-Chloroperoxybenzoic acid 1000-84-6 1068-57-1, Acetylhydrazide 1122-28-7, 4,5-Dicyanoimidazole 1310-58-3, Potassium hydroxide, reactions 1522-22-1, Hexafluoroacetylacetone 1643-19-2, Tetrabutylammonium **bromide** 1648-99-3 2094-98-6, 1,1'-Azobis(cyclohexanecarbonitrile) 2582-30-1, 1-Aminoguanidine bicarbonate 2633-67-2, 4-Styrenesulfonyl **chloride** 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid) 2893-78-9, Dichloroisocyanuric acid, sodium salt 3804-23-7, Scandium acetate 4546-95-6, 1,2,3-Triazole-4,5-dicarboxylic acid 7447-41-8, Lithium **chloride**, reactions 7647-01-0, Hydrochloric acid, reactions 7647-14-5, Sodium **chloride**, reactions 7664-39-3, Hydrofluoric acid, reactions 7757-82-6, Sodium sulfate, reactions 7758-09-0, Potassium nitrite 7782-50-5, Chlorine, reactions 7789-23-3, Potassium **fluoride** 9002-92-0, Brij 30 13360-57-1 13637-84-8, Chlorosulfonyl **fluoride** 13781-67-4, 2-(3-Thienyl)ethanol 14635-75-7, Nitrosonium tetrafluoroborate 16090-14-5 17455-13-9, 18-Crown-6 17587-22-3, 1,1,1,2,2,3,3-Heptafluoro-7,7-**dimethyl**-4,6-octanedione 20583-66-8, 1,1,1,5,5,6,6,7,7,7-Decafluoro-2,4-Heptanedione 26628-22-8, Sodium **azide** 27070-49-1, 1,2,3-Triazole 31469-15-5, 1-Methoxy-1-(trimethylsilyloxy)-2-methyl-1-propene 39262-22-1 39377-49-6, Copper cyanide 53188-07-1, Trolox 56512-49-3, 4-(Dimethylamino)azobenzene-4'-sulfonyl **chloride** 65039-09-0, 1-Ethyl-3-methyl-1H-imidazolium **chloride** 66051-48-7 77968-17-3 81850-46-6 81850-47-7 89183-45-9, Polyaniline hydrochloride 210049-00-6 210289-26-2 210289-55-7 210469-93-5 661461-58-1 661461-61-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7081-78-9P, 1-Chloro-1-ethoxyethane 14694-34-9P 210289-23-9P 210289-24-0P 210289-27-3P 210289-28-4P 210289-33-1P 210289-34-2P 210289-35-3P 210469-96-8P 210470-00-1P 661461-47-8P 661461-59-2P 661467-33-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 1333-74-0, Hydrogen, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 58649-05-1P 107740-92-1P 159699-92-0P 210289-25-1P 210469-94-6P 661461-39-8P 661461-41-2P 661461-46-7P 661461-48-9P 661465-23-2P 661467-34-1P 661467-35-2P 661467-36-3P 661467-38-5P 661467-39-6DP, tetraalkylammonium salts
RL: SPN (Synthetic preparation); PREP (Preparation)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 100-42-5D, Styrene, 5-membered ring- contg. derivs.
RL: TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 126-33-0D, Sulfolane, derivs.
RL: NUU (Other use, unclassified); USES (Uses)
(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 156118-35-3DP, 2-(5-cyano-1,3,4-triazole)-4,4-difluorobutyl-, lithium salt
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP

(Preparation)
(surfactant and antistatic; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

L3 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 2003:454898 CAPLUS
DN 139:39126
ED Entered STN: 13 Jun 2003
TI Nonaqueous electrolytes for lithium primary and secondary batteries
IN Barbarich, Thomas J.
PA Yardney Technical Products, Inc., USA
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01M010-40
ICS H01M004-58; H01M004-60
INCL 429324000; 429231950; 429231400; 429213000; 429303000; 429307000; 429338000; 429342000; 429332000; 429333000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003108800	A1	20030612	US 2002-289784	20021107
	US 6852446	B2	20050208		
PRAI	US 2001-347083P	P	20011109		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003108800	ICM	H01M010-40
	ICS	H01M004-58; H01M004-60
	INCL	429324000; 429231950; 429231400; 429213000; 429303000; 429307000; 429338000; 429342000; 429332000; 429333000
US 2003108800	NCL	429/324.000

OS MARPAT 139:39126
AB A nonaq. elec. current producing electrochem. cell is provided comprising an anode and a cathode, an ionically permeable separator interposed between the anode and the cathode, and a nonaq. electrolyte, the electrolyte comprising an ionically conducting salt in a nonaq. medium, the ionically conducting salt corresponding to the formula: M+(Z*(J*)j(X*)x)-, wherein: M is a lithium atom, Z* is an anion group contg. two or more Lewis basic sites and comprising less than 50 atoms not including hydrogen atoms, J* independently each occurrence is a Lewis acid coordinated to at least one Lewis basic site of Z*, and optionally two or more such J* groups may be joined together in a moiety having multiple Lewis acidic functionality, X* independently each occurrence is selected from the group consisting of H, C1-4 alkyl, alkoxide, **halide** and mixts. thereof, j is an integer from 2 to 12, and x is an integer from 0 to 4.
ST lithium battery nonaq electrolyte
IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(gels; nonaq. electrolytes for lithium primary and secondary batteries)
IT Chalcogenides
Oxides (inorganic), uses
RL: DEV (Device component use); USES (Uses)
(lithiated; nonaq. electrolytes for lithium primary and secondary batteries)
IT Primary batteries

Secondary batteries
(lithium; nonaq. electrolytes for lithium primary and secondary batteries)

IT Glass, uses
RL: DEV (Device component use); USES (Uses)
(membrane; nonaq. electrolytes for lithium primary and secondary batteries)

IT Battery electrolytes
Ionic conductivity
Polar solvents
(nonaq. electrolytes for lithium primary and secondary batteries)

IT Esters, uses
Ethers, uses
Lactones
Nitriles, uses
Polyanilines
Sulfones
Transition metal chalcogenides
Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)

IT Disulfides
RL: DEV (Device component use); USES (Uses)
(org., redox polymers; nonaq. electrolytes for lithium primary and secondary batteries)

IT **Transition metal** compounds
RL: DEV (Device component use); USES (Uses)
(oxysulfides; nonaq. electrolytes for lithium primary and secondary batteries)

IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(mesocarbon microbeads; nonaq. electrolytes for lithium primary and secondary batteries)

IT 57-12-5, Cyanide, uses 60-29-7, Diethyl ether, uses 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 120-73-0D, Purine, derivs. 504-66-5D, Dicyanamide, derivs. 616-38-6, **Dimethyl** carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, Dioxolane 7439-93-2, Lithium, uses 7439-93-2D, Lithium, intercalation compd. 14343-69-2, **Azide** 17655-31-1, Amide 17997-24-9D, Methanetricarbonitrile, ion(1-), derivs. 25233-30-1, Polyaniline 25948-29-2, Carbon disulfide homopolymer 28737-40-8D, Squarate ion(2-), derivs. 32178-55-5D, Benzimidazolide, derivs. 34512-21-5D, derivs. 36954-03-7D, Imidazole anion, derivs. 39448-96-9, Graphite lithium 51719-91-6D, derivs. 64544-32-7D, derivs. 68146-66-7D, derivs. 81425-01-6D, derivs. 217309-42-7, Copper lithium nickel oxide Cu0.2LiNi0.8O2 261356-47-2D, Borate(1-), tetrakis(cyano-κC)-, derivs. 519040-72-3 527685-88-7 527685-89-8 527685-90-1 527685-91-2 527685-92-3 527685-93-4 527685-94-5 527685-95-6 527685-96-7 527685-98-9 527686-01-7 527686-04-0 527686-06-2 527686-08-4 541502-73-2D, derivs. 541502-74-3D, derivs.
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)

IT 55986-39-5P, Lithium imidazolide 148505-26-4P 464194-97-6P 519040-73-4P 519040-74-5P 519040-75-6P 527685-86-5P 527685-87-6P 527686-13-1P 527686-16-4P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)
IT 9002-88-4, Polyethylene
RL: DEV (Device component use); USES (Uses)
(separator; nonaq. electrolytes for lithium primary and secondary batteries)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; JP 2002260734 2002 CAPLUS
(2) LaPointe; US 6395671 B2 2002 CAPLUS
(3) Lapointe; J. Am. Chem. Soc. 2000, V122, P9560 CAPLUS
(4) Lee; US 6022643 A 2000 CAPLUS
(5) Lee; J. Electrochem. Soc. 1998, V145(8), P2813 CAPLUS
(6) Sun; Journal of the Electrochemical Society 1999, V146(10), P3655 CAPLUS

L3 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 2001:301013 CAPLUS
DN 134:304215
ED Entered STN: 27 Apr 2001
TI Method for depositing nanolaminate thin films on sensitive surfaces
IN Elers, Kai-Erik; Haukka, Suvi P.; Saanila, Ville Antero; Kaipio, Sari Johanna; Soininen, Pekka Juha
PA Asm America, Inc., USA
SO PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DT Patent
LA English
IC H01L021-768; H01L021-285; C23C016-00
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75
FAN.CNT 8

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001029893	A1	20010426	WO 2000-US28654	20001016
	W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	FI 9902233	A	20010416	FI 1999-2233	19991015
	FI 9902234	A	20010416	FI 1999-2234	19991015
	FI 9902235	A	20010416	FI 1999-2235	19991015
	FI 2000000564	A	20010416	FI 2000-564	20000310
	EP 1221178	A1	20020710	EP 2000-973583	20001016
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
	JP 2003524888	T2	20030819	JP 2001-531142	20001016
	US 6902763	B1	20050607	US 2002-49125	20001016
	US 2002187256	A1	20021212	US 2002-210715	20020730
	US 6821889	B2	20041123		
	US 2003031807	A1	20030213	US 2002-246131	20020917
	US 6800552	B2	20041005		
	US 2005106877	A1	20050519	US 2004-969297	20041019
	US 2005064098	A1	20050324	US 2004-990424	20041116

PRAI	FI 1999-2233	A	19991015
	FI 1999-2234	A	19991015
	FI 1999-2235	A	19991015
	US 1999-175799P	P	19991015
	US 2000-176948P	P	20000118
	FI 2000-564	A	20000310
	US 1999-159799P	P	19991015
	US 2000-687204	A1	20001013
	US 2000-687205	A1	20001013
	WO 2000-US28654	W	20001016
	US 2002-210715	A1	20020730

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001029893	IC	H01L021-768IC H01L021-285IC C23C016-00
WO 2001029893	ECLA	C23C016/32; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
FI 9902233	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
FI 9902234	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
FI 2000000564	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
EP 1221178	ECLA	C23C016/32; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
US 6902763	NCL	427/250.000; 427/252.000; 427/255.150; 427/255.230; 427/255.260; 427/255.280; 427/255.390; 427/255.700
	ECLA	C30B025/02; C30B029/02; C30B029/36; C30B029/38
US 2002187256	NCL	427/096.800
	ECLA	C23C016/02H; C23C016/04D; C23C016/08; C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B025/14; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4H2; H01L021/285B4L; H01L021/768B2D; H01L021/768C; H01L021/768C3; H01L021/768C4; H01L023/522E; H01L023/532M1A4; H01L023/532M1C; H01L023/532M1C4; H01L023/532M1N; H01L023/532M1N4; H01L023/532N; H01L023/532N4
US 2003031807	NCL	427/569.000
	ECLA	C23C016/02H; C23C016/04D; C23C016/08; C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4H2; H01L021/285B4L; H01L021/768B2D; H01L021/768C; H01L021/768C3; H01L021/768C4; H01L023/522E; H01L023/532M1A4; H01L023/532M1C4; H01L023/532M1N; H01L023/532M1N4; H01L023/532N; H01L023/532N4
US 2005106877	NCL	438/689.000
	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4

US 2005064098 NCL 427/250.000
ECLA C23C016/02H; C23C016/04D; C23C016/08; C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B025/14; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4H2; H01L021/285B4L; H01L021/768B2D; H01L021/768C; H01L021/768C3; H01L021/768C4; H01L023/522E; H01L023/532M1A4; H01L023/532M1C4; H01L023/532M1N; H01L023/532M1N4; H01L023/532N; H01L023/532N4

AB The present method provides tools for growing conformal metal nitride, metal carbide and metal thin films, and nanolaminate structures incorporating these films, from aggressive chems. The amt. of corrosive chem. compds., such as H **halides**, is reduced during the deposition of **transition metal**, **transition metal** carbide and **transition metal** nitride thin films on various surfaces, such as metals and oxides. Getter compds. protect surfaces sensitive to H **halides** and NH4+ **halides**, such as Al, Cu, Si oxide and the layers being deposited, against corrosion. Nanolaminate structures incorporating metal nitrides, such as Ti nitride and W nitride, and metal carbides, and methods for forming the same, are also disclosed.

ST depositing **transition metal** carbide nitride nanolaminate film sensitive surface

IT Monolayers
(chemisorption; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Interconnections (electric)
(copper and aluminum; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Electrodeposition
(copper film; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Atomic layer epitaxy
Gettering
(depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Hydrogen **halides**
RL: BYP (Byproduct); PREP (Preparation)
(depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT **Transition metal** carbides
Transition metal nitrides
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Integrated circuits
(fabrication of; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Chemisorption
(monolayer; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Films

(multilayer, thin; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Laminated materials
(nano-; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Corrosion
(on sensitive surfaces; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT Vapor deposition process
(plasma, copper or silica film; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 7429-90-5, Aluminum, processes 7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(conductive films; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 25583-20-4, Titanium nitride (TiN) 37359-53-8, Tungsten nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 7647-01-0P, Hydrogen **chloride**, preparation 7664-39-3P, Hydrogen **fluoride**, preparation 12125-01-8P, Ammonium **fluoride**
RL: BYP (Byproduct); PREP (Preparation)
(deposition byproducts; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 7550-45-0, Titanium tetrachloride, processes 7664-41-7, Ammonia, processes 7783-82-6, Tungsten hexafluoride
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(deposition gas reactants; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 11105-01-4, Silicon oxynitride 11130-73-7, Tungsten carbide 12033-62-4, Tantalum nitride 12033-89-5, Silicon nitride, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diffusion barrier; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 74-85-1, Ethene, processes 74-89-5, Methyl amine, processes 75-24-1, Trimethylaluminum 97-94-9, Triethyl boron 631-36-7, Tetraethyl silicon 7782-65-2, Germane 7803-62-5, Silane, processes 12152-72-6, Cyclohexadieneiron tricarbonyl 12189-86-5, Ferrocene, 1,1'-bis(trimethylsilyl)- 13283-31-3, Borane, processes 19287-45-7, Diborane
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(gettering agents; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 109-89-7, Diethylamine, processes 121-44-8, Triethylamine, processes

302-01-2, Hydrazine, processes 624-90-8, Methyl **azide**
7782-79-8, Hydrogen **azide** 19624-22-7, Pentaborane (B5H9)
30260-66-3, **Dimethyl** hydrazine 186958-04-3, Nitrogen **fluoride**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(second source materials; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 78-10-4, TEOS
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(silica precursor; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 7440-21-3, Silicon, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(substrate; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

IT 7631-86-9, Silica, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(thin films; depositing **transition metal**, **transition metal** carbide, **transition metal** nitride nanolaminate thin films on sensitive surfaces)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bushnell, P; US 5947710 A 1999
(2) Genus Inc; WO 0054320 A 2000 CAPLUS
(3) Hultman, L; ZEITSCHRIFT FUR METALLKUNDE 1999, V90(10), P803 CAPLUS
(4) Sherman, A; US 5916365 A 1999 CAPLUS

L3 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 2000:862646 CAPLUS
DN 134:246527
ED Entered STN: 11 Dec 2000
TI Iron, cobalt and vanadium complexes of the N(CH2CH2S)33- ligand with **chloride**, **azide**, cyanide and carbonyl co-ligands
AU Davies, Sian C.; Durrant, Marcus C.; Hughes, David L.; Richards, Raymond L.; Sanders, J. Roger
CS Department of Biological Chemistry, John Innes Centre, Norwich, NR4 7UH, UK
SO Dalton (2000), (24), 4694-4701
CODEN: DALTFG
PB Royal Society of Chemistry
DT Journal
LA English
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75
OS CASREACT 134:246527
AB Reaction of [Fe(acac)3], Et4NCl and N(CH2CH2SH)3 (NS3H3) in MeCN gave [Et4N][FeCl(NS3)] (1) and after metathesis the **azide** [Et4N][Fe(N3)(NS3)] (2), but reaction of [Fe(acac)3], R4NOAc and NS3H3 in MeCN gave [R4N][Fe4(NS3)3] (R = Et, 3; Me, 4). Complex 1 is reduced under various conditions giving R'[Fe(NS3)] (R' = Et4N, 5; Tl, 6; N2H5, 7) which probably contain sulfur-bridged [{Fe(NS3)}n]n- anions. Under CO, 1 is reduced to the paramagnetic [Et4N][Fe(NS3)(CO)] (8) from which Tl[Fe(NS3)(CO)] (9) may be made by metathesis. Compd. 8 reacts with metal

chlorides in acetonitrile giving trinuclear [M{Fe(NS3)(CO)}2-S,S'] (M = Fe, 10; Co, 11). The above complexes were characterized by microanal., IR and Mossbauer spectra and magnetic measurements; crystal structure detns. were carried out on 1, 2, 8, 10, and 11. The properties of the anions of 1 and 8 and of the hypothetical anions [Fe(NS3)]- and [Fe(N2)(NS3)]- were studied by d. functional theory calcns. Compds. 8 and 10 have ν(CO) in the range 1960-1880 cm^{-1} and model aspects of carbon monoxide binding to the cofactor of nitrogenase. Related cyanide complexes [Et4N][M(NS3)(CN)] (M = Co, 12; V, 13) were characterized, 12 by x-ray anal.

ST crystal structure iron cobalt nitrilotriethanethiolato complex; nitrilotriethanethiolate **transition metal** complex prepn structure; iron nitrilotriethanethiolato complex prepn structure; cobalt nitrilotriethanethiolato complex prepn structure; vanadium nitrilotriethanethiolato complex prepn

IT Binding energy
(DFT calcns. of optimized mol. structure and binding energy of iron thiolato and nitrilotriethanethiolato complexes)

IT **Transition metal** complexes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(amino thiol, nitrilotriethanethiol; prepn. and crystal and mol. structure of iron, cobalt and vanadium nitrilotriethanethiolato complexes)

IT Thiols (organic), preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(amino, **transition metal** complexes, nitrilotriethanethiol; prepn. and crystal and mol. structure of iron, cobalt and vanadium nitrilotriethanethiolato complexes)

IT Crystal structure
Molecular structure
(of iron and cobalt nitrilotriethanethiolato complexes)

IT Molecular structure
(optimized; DFT calcns. of optimized mol. structure and binding energy of iron thiolato and nitrilotriethanethiolato complexes)

IT 220024-65-7 329967-90-0 329968-03-8 329968-05-0 329968-07-2 329968-09-4 329968-13-0
RL: PRP (Properties)
(DFT calcns. of optimized mol. structure and binding energy in study of iron nitrilotriethanethiolato complexes)

IT 220024-67-9P 329967-88-6P 329967-97-7P 329967-99-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal and mol. structure)

IT 4201-86-9DP, 2,2',2''-Nitrilotriethanethiol, iron trinuclear complexes
7439-89-6DP, Iron, nitrilotriethanethiol trinuclear complexes, preparation
291748-87-3P 329967-91-1P 329967-93-3P 329967-94-4P 329967-96-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 220024-64-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn., crystal and mol. structure and metathesis and redn. reactions)

IT 220024-66-8P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn., crystal and mol. structure and reactions)

IT 18909-92-7, Bis(acetonitrile)dichlorocobalt 21679-46-9, Tris(acetylacetonato)cobalt 87114-91-8, Bis(acetonitrile)dichloroiron 193409-25-5 329968-00-5, Dichlorotris(**dimethyl** sulfoxide)iron
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for prepn. of **transition metal** nitrilotriethanethiolato complex)

IT 4201-86-9, 2,2',2''-Nitrilotriethanethiol 14024-18-1,
Tris(acetylacetonato)iron
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for prepn. of **transition metal**
nitrilotriethanethiolato complexes)
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anderson, S; J Chem Soc Dalton Trans 1986, P245 CAPLUS
(2) Anon; International Tables for X-Ray Crystallagraphy 1992, VC, P193
(3) Anon; International Tables for X-Ray Crystallagraphy 1992, VC, P219
(4) Anon; International Tables for X-Ray Crystallagraphy 1992, VC, P500
(5) Barbaro, P; Inorg Chem 1994, V33, P3180 CAPLUS
(6) Beck, A; J Chem Phys 1993, V98, P5648
(7) Davies, S; Chem Commun 1997, P1261 CAPLUS
(8) Davies, S; Chem Commun 1998, P2699 CAPLUS
(9) Davies, S; Chem Commun 1999, P1935 CAPLUS
(10) Davies, S; J Chem Soc Dalton Trans 2000, P719 CAPLUS
(11) Do, Y; Inorg Chem 1985, V24, P4635 CAPLUS
(12) Dunning, T; Modern Theoretical Chemistry 1976, V3, P1
(13) Eady, R; Chem Rev 1996, V96, P3013 CAPLUS
(14) Frisch, M; Gaussian 98 Revision A.3 1998
(15) George, S; J Am Chem Soc 1997, V119, P6450 CAPLUS
(16) Hagen, K; J Am Chem Soc 1983, V105, P3905 CAPLUS
(17) Harley-Mason, J; J Chem Soc 1947, P320 CAPLUS
(18) Hay, P; J Chem Phys 1985, V82, P270 CAPLUS
(19) Hay, P; J Chem Phys 1985, V82, P299 CAPLUS
(20) Huang, W; Structure 1997, V5, P691 CAPLUS
(21) Lee, H; J Am Chem soc 1997, V119, P10121 CAPLUS
(22) Nagashima, S; Nature Struct Biol 1998, V5, P347 CAPLUS
(23) Nanda, K; Inorg Chem 1996, V35, P1 CAPLUS
(24) Nguyen, D; J Am Chem Soc 1996, V118, P8963 CAPLUS
(25) O'Donoghue, M; Inorg Chem 1999, V38, P243 CAPLUS
(26) O'Donoghue, M; J Am Chem Soc 1997, V119, P2753 CAPLUS
(27) Pau, R; Biology and Biochemistry of Nitrogen Fixation 1991, P37 CAPLUS
(28) Ray, M; J Am Chem Soc 1996, V118, P6084 CAPLUS
(29) Rees, D; Adv Inorg Chem 1993, V40, P89
(30) Sheldrick, G; Acta Crystallogr Sect A 1990, V46, P467
(31) Sheldrick, G; SHELXL 1993
(32) Wadt, W; J Chem Phys 1985, V82, P284 CAPLUS
(33) Ward, K; J Am Chem Soc 1935, V57, P914 CAPLUS

L3 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 2000:690434 CAPLUS
DN 134:17149
ED Entered STN: 01 Oct 2000
TI Asymmetric cyclopropanation of vinyl **fluorides**: access to enantiopure monofluorinated cyclopropane carboxylates
AU Meyer, Oliver G. J.; Frohlich, Roland; Haufe, Gunter
CS Organisch-Chemisches Institut, Westfalische Wilhelms-Universitat Munster, Munster, D-48149, Germany
SO Synthesis (2000), (10), 1479-1490
CODEN: SYNTBF; ISSN: 0039-7881
PB Georg Thieme Verlag
DT Journal
LA English
CC 21-2 (General Organic Chemistry)
Section cross-reference(s): 67, 75
OS CASREACT 134:17149

AB The **transition metal** catalyzed cyclopropanation with alkyl diazoacetates of aliph. or arom. vinyl **fluorides**, prepd. from the corresponding alkenes by bromofluorination and subsequent dehydrobromination, provides a smooth access to racemic 1:1 mixts. of cis/trans isomeric monofluorinated cyclopropanecarboxylates. The application of enantiopure bis(oxazoline) ligands and Cu(I) triflate makes the reaction trans-diastereoselective and enantioselective. For example, treatment of α-fluorostyrene with tert-Bu diazoacetate in the presence of 2 mol% of the catalyst prepd. from (S)-tert-leucine-based 2,2-bis(4-tert-butyl-2-oxazolin-2-yl)propane and CuOTf gave a 4:1 mixt. of trans-2-fluoro-2-phenylcyclopropanecarboxylate (4e) with 93% ee and the corresponding cis-isomer 5e with 89% ee. The abs. configuration of the trans-isomer 4e is (1S,2S) by x-ray structure anal. of a deriv.

ST crystal structure fluorocyclopropanecarboxylic acid amide; mol structure fluorocyclopropanecarboxylic acid amide; asym cyclopropanation vinyl **fluoride** copper oxazoline complex catalysis; cycloaddn alkyl diazoacetate vinyl **fluoride**

IT Crystal structure
Molecular structure
(of fluorocyclopropanecarboxylic acids and amide)

IT Candida cylindracea
(stereoselective hydrolysis of fluorocyclopropanecarboxylic ester catalyzed by)

IT Cyclopropanation catalysts
(stereoselective; copper-oxazoline-deriv. complexes for [2+1]-cycloaddn. of vinyl **fluorides** with alkyl diazoacetates)

IT Hydrolysis
(stereoselective; of fluorocyclopropanecarboxylic ester in presence of Candida rugosa)

IT Cyclopropanation
(stereoselective; of vinyl **fluorides** using alkyl diazoacetates in presence of copper-oxazoline-deriv. complexes)

IT 131833-92-6, 2,2-Bis((S)-4-isopropyl-2-oxazolin-2-yl)propane
131833-93-7, 2,2-Bis((S)-4-tert-butyl-2-oxazolin-2-yl)propane
180036-68-4, (4R,5R)-4,5-Bis((S)-4-isopropyl-2-oxazolin-2-yl)-2,2-**dimethyl**-1,3-dioxolane
RL: CAT (Catalyst use); USES (Uses)
(asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by copper triflate and)

IT 309242-41-9P 309242-42-0P 309242-43-1P 309242-44-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by copper triflate and oxazoline derivs.)

IT 42152-44-3, Copper(1+) trifluoromethanesulfonate
RL: CAT (Catalyst use); USES (Uses)
(asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by oxazoline derivs. and)

IT 63254-50-2, (-)-Menthyl diazoacetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(asym. cyclopropanations of vinyl **fluorides** by alkyl diazoacetate catalyzed by copper triflate and oxazoline deriv.)

IT 106-40-1, 4-Bromoaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with fluorocyclopropanecarbonyl **chloride**)

IT 309242-52-2P 309242-53-3P 309242-54-4P 309242-55-5P 309242-56-6P 309242-57-7P 309242-58-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(copper-catalyzed asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates giving)

IT 13395-16-9, Bis(acetylacetonato)copper

RL: CAT (Catalyst use); USES (Uses)
(cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by)

IT 1073-67-2, p-Chlorovinylbenzene
RL: RCT (Reactant); RACT (Reactant or reagent)
(for prepn. of 1-(2-bromo-1-fluoroethyl)-4-chlorobenzene)

IT 2158-14-7, p-Acetamidobenzenesulfonyl **azide**
RL: RCT (Reactant); RACT (Reactant or reagent)
(for prepn. of tert-Bu diazoacetate)

IT 100-52-7, Benzaldehyde, reactions 123-11-5, 4-Methoxybenzaldehyde, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(for prepn. of vinyl **fluoride**)

IT 35059-50-8P, tert-Butyl diazoacetate
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and asym. cyclopropanations of vinyl **fluorides** by alkyl diazoacetate catalyzed by copper triflate and oxazoline deriv.)

IT 309242-37-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and attempted hydrolysis in presence of lipases)

IT 309242-46-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal structure of)

IT 20405-77-0P, (E)-1-Fluoro-2-phenylethene 26946-13-4P, (E)-1-Fluoro-2-(4-methoxyphenyl)ethene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and cyclopropanation by Et diazoacetate catalyzed by copper/rhodium catalysts)

IT 309242-33-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and lipase-catalyzed stereoselective hydrolysis of)

IT 106263-12-1P, 1-(4-Chlorophenyl)-1-fluoroethene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and sym. and asym. cyclopropanations by alkyl diazoacetates catalyzed by copper compds.)

IT 242148-56-7P, 1-(2-Bromo-1-fluoroethyl)-4-chlorobenzene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and use in prepn. of vinyl **fluoride**)

IT 309242-34-0P 309242-35-1P 309242-36-2P 309242-38-4P 309242-39-5P 309242-40-8P 309242-47-5P 309242-48-6P 309242-51-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 309242-45-3P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn., crystal structure, and N-Boc-protected fluorocyclopropylamine)

IT 309242-31-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(stereoselective synthesis and acid hydrolysis of)

IT 309242-49-7P, (1R,2R)-2-Fluoro-2-phenylcyclopropanecarboxylic acid 309242-50-0P, (1S,2S)-Ethyl 2-fluoro-2-phenylcyclopropanecarboxylate
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(stereoselective synthesis and conversion to amide)
IT 309242-30-6P, (1S,2S)-2-Fluoro-2-phenylcyclopropanecarboxylic (4-Bromophenyl)amide
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(stereoselective synthesis and crystal structure of)
IT 309242-32-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(stereoselective synthesis of)
IT 696-31-1, 1-Fluoro-1-phenylethene 14251-63-9, (E)-1-Fluoro-1-phenyl-1-propene 203928-81-8, 2-Fluoro-1-hexene
RL: RCT (Reactant); RACT (Reactant or reagent)
(sym. and asym. cyclopropanations by alkyl diazoacetates catalyzed by copper compds.)
IT 623-73-4, Ethyl diazoacetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(sym. and asym. cyclopropanations of vinyl **fluorides** by alkyl diazoacetates catalyzed by copper compds.)
RE.CNT 81 THERE ARE 81 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Alvernhe, G; Synthesis 1987, P562 CAPLUS
(2) Anon; ACS Monograph 1995, 187
(3) Anon; ACS Symposium Series 1996, 639
(4) Anon; ASC Symposium Series 2000, 746
(5) Anon; Enantiocontrolled Synthesis of Fluoro-Organic Compounds 1999
(6) Anon; Houben-Weyl 4th ed 1997, VE17a/b
(7) Anon; Organofluorine Chemistry 1994
(8) Anon; Organofluorine Compounds in Medicinal Chemistry and Biomedical Applications 1993
(9) Anon; Synthetic Fluorine Chemistry 1992
(10) Bedekar, A; J Org Chem 1997, V62, P2518 CAPLUS
(11) Bogachev, A; J Fluorine Chem 1999, V97, P135 CAPLUS
(12) Bolm, C; Angew Chem, Int Ed 1991, V30, P542
(13) Boulch, R; Tetrahedron Lett 2000, V41, P1023 CAPLUS
(14) Brookhart, M; J Am Chem Soc 1983, V105, P258 CAPLUS
(15) Brunner, H; Angew Chem, Int Ed 1992, V31, P1183
(16) Buddrus, J; Tetrahedron Lett 1966, P5379 CAPLUS
(17) Cai, L; Tetrahedron: Asymmetry 1999, V10, P411 CAPLUS
(18) Charette, A; Comprehensive Asymmetric Catalysis 1999, V2, P581 CAPLUS
(19) Cho, D; Tetrahedron: Asymmetry 1999, V10, P3833 CAPLUS
(20) Cottens, S; Tetrahedron 1988, V44, P7127 CAPLUS
(21) Cox, D; J Am Chem Soc 1985, V107, P2811 CAPLUS
(22) Crowley, P; Tetrahedron Lett 1996, V37, P8233 CAPLUS
(23) Crowley, P; Tetrahedron Lett 1996, V37, P8237 CAPLUS
(24) Davies, H; Eur J Org Chem 1999, P2459 CAPLUS
(25) Denmark, S; J Org Chem 1995, V60, P4884 CAPLUS
(26) Dolbier, W; J Chem Soc, Perkin Trans 2 1998, P219
(27) Doyle, M; Chem Rev 1986, V86, P919 CAPLUS
(28) Doyle, M; Chem Rev 1998, V98, P911 CAPLUS
(29) Doyle, M; Comprehensive Organometallic Chemistry 1995, P387
(30) Doyle, M; Organometallics 1984, V3, P44 CAPLUS
(31) Doyle, M; Organometallics 1984, V3, P53 CAPLUS
(32) Doyle, M; Tetrahedron 1998, V54, P7919 CAPLUS
(33) Eckes, L; Synthesis 1978, P217 CAPLUS
(34) Eilbracht, P; Houben-Weyl 4th ed 1995, VE21c, P2650
(35) Ernet, T; Synthesis 1997, P953 CAPLUS
(36) Ernet, T; Tetrahedron Lett 1996, V37, P7251 CAPLUS
(37) Evans, D; J Am Chem Soc 1991, V113, P726 CAPLUS
(38) Fraile, J; Tetrahedron: Asymmetry 1998, V9, P3997 CAPLUS
(39) Fritschi, H; Angew Chem, Int Ed 1986, V25, P1005
(40) Fritschi, H; Helv Chim Acta 1988, V71, P1553 CAPLUS

(41) Ghosh, A; Tetrahedron: Asymmetry 1998, V9, P1 CAPLUS
(42) Hassner, A; Tetrahedron Lett 1978, P4475 CAPLUS
(43) Haufe, G; Org Synth 1999, V76, P159 CAPLUS
(44) Helmchen, G; Thieme: Stuttgart 1995, P3220
(45) Ikeno, T; Chem Lett 1999, P1345 CAPLUS
(46) Imura, A; Tetrahedron: Asymmetry 1998, V9, P3047 CAPLUS
(47) Ito, H; Tetrahedron: Asymmetry 1998, V9, P1979 CAPLUS
(48) Ito, H; Tetrahedron: Asymmetry 1998, V9, P1989 CAPLUS
(49) Iwaoka, T; Chem Pharm Bull 1992, V40, P2319 CAPLUS
(50) Jeong, I; Bull Korean Chem Soc 1990, V11, P178 CAPLUS
(51) Kovac, B; J Chem Soc, Perkin Trans 2 1999, P2455 CAPLUS
(52) Kovtonyuk, V; J Chem Soc, Perkin Trans 1 in press 2000
(53) Kroger, S; Liebigs Ann/Recueil 1997, P1201 CAPLUS
(54) Kuroboshi, M; Bull Chem Soc 1995, V68, P1799 CAPLUS
(55) Laue, K; Synthesis 1998, P1453 CAPLUS
(56) Laue, K; Tetrahedron 1999, V55, P10413 CAPLUS
(57) Lermontov, S; J Fluorine Chem 1998, V87, P75 CAPLUS
(58) Li, Z; Tetrahedron: Asymmetry 2000, V11, P1157 CAPLUS
(59) Liu, H; The Chemistry of the Cyclopropyl Group 1987, P959
(60) Loffler, F; Synlett 1999, P1826 CAPLUS
(61) Lowenthal, R; Tetrahedron Lett 1990, V31, P6005 CAPLUS
(62) Lydon, K; Comprehensive Asymmetric Catalysis 1999, V2, P540
(63) Maas, G; Top Curr Chem 1987, V137, P75 CAPLUS
(64) McKennon, M; J Org Chem 1993, V58, P3568 CAPLUS
(65) Meyer, O; 12th European Symposium on Fluorine Chemistry 1998
(66) Muller, D; Helv Chim Acta 1991, V74, P232
(67) Nishiyama, H; Tetrahedron: Asymmetry 1998, V9, P2865 CAPLUS
(68) Noels, A; Applied Homogeneous Catalysis with Organometallic Compounds 1996, P733 CAPLUS
(69) O'Bannon, P; Tetrahedron 1990, V46, P7341 CAPLUS
(70) Pfaltz, A; Acc Chem Res 1993, V26, P339 CAPLUS
(71) Pfaltz, A; Comprehensive Asymmetric Catalysis 1999, V2, P513 CAPLUS
(72) Reissig, H; Houben-Weyl 4th ed VE21c
(73) Salaun, J; Top Curr Chem 2000, V207, P1 CAPLUS
(74) Singh, V; Synthesis 1997, P137 CAPLUS
(75) Smart, B; Chemistry of Organic Fluorine Compounds 2 1995, 187, P979
(76) Smart, B; Organofluorine Chemistry 1994, P58
(77) Suga, H; Tetrahedron 1990, V46, P4255 CAPLUS
(78) Tamura, M; Synthesis 1995, P515 CAPLUS
(79) Uchida, T; Synlett 1999, P1793 CAPLUS
(80) Welch, J; Fluorine in Bioorganic Chemistry 1991
(81) Wu, X; Tetrahedron: Asymmetry 1998, V9, P4143 CAPLUS

L3 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 2000:305602 CAPLUS
DN 132:308843
ED Entered STN: 11 May 2000
TI Carbene **transition metal** catalysts for polymerization
IN Cavell, Ronald G.; Wang, Qinyan; Babu, Ruppa P. Kamalesh; Kasani, Aparna
PA The Governors of the University of Alberta, Can.
SO U.S., 17 pp., Cont.-in-part of U.S. Ser. No. 216,041, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM C08F004-06
ICS C08F004-44; C07F009-02
INCL 526131000
CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 29, 67, 78

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6060568	A	20000509	US 1999-377233	19990819
	CA 2291527	AA	20000618	CA 1999-2291527	19991203
	US 6313331	B1	20011106	US 2000-513682	20000225
PRAI	US 1998-216041	B2	19981218		
	US 1999-377233	A	19990819		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6060568	ICM	C08F004-06
	ICS	C08F004-44; C07F009-02
	INCL	526131000
US 6060568	NCL	526/131.000; 502/103.000; 502/117.000; 526/160.000; 526/161.000; 534/015.000; 556/001.000; 556/018.000; 556/022.000; 556/042.000; 556/052.000; 556/058.000; 556/121.000; 556/140.000
	ECLA	C07F009/535D; C08F010/00+4/52; C08F010/00+4/659
US 6313331	NCL	556/018.000; 502/103.000; 502/117.000; 526/131.000; 526/160.000; 526/161.000; 534/015.000; 556/001.000; 556/022.000; 556/042.000; 556/052.000; 556/058.000; 556/121.000; 556/140.000
	ECLA	C07F009/535D; C08F010/00+4/52; C08F010/00+4/659

OS MARPAT 132:308843

AB The present invention relates to novel complexes of (**transition**) **metals** contg. ligands having phosphorus centers supporting a carbene structure or heteroalkane radical bonded to the (**transition**) **metal**. Ethylene was polymd. using [ZrCl2[C(Ph2PdNSiMe3)2]] and methylaluminoxane catalysts.

ST **transition metal** carbene complex catalyst olefin polymn

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me; carbene **transition metal** catalysts for polymn.)

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(activator; carbene **transition metal** catalysts for polymn.)

IT Polymerization catalysts
(carbene **transition metal** catalysts for polymn.)

IT Rare earth complexes
Transition metal complexes
RL: CAT (Catalyst use); USES (Uses)
(carbene; carbene **transition metal** catalysts for polymn.)

IT 1109-15-5, Trispentafluorophenyl boron 118612-00-3, N,N-Dimethylaniliniumtetrakispentafluorophenyl borate 136040-19-2, Triphenylmethylium tetrakispentafluorophenyl borate
RL: CAT (Catalyst use); USES (Uses)
(activator; carbene **transition metal** catalysts for polymn.)

IT 229957-83-9P 246543-91-9P 258339-13-8P 266001-98-3P 266001-99-4P 266002-03-3P 266002-04-4P 266002-05-5P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(carbene **transition metal** catalysts for polymn.)

IT 9002-88-4P, Polyethylene
RL: IMF (Industrial manufacture); PREP (Preparation)

(carbene **transition metal** catalysts for polymn.)
IT 230969-42-3P 245679-04-3P 246543-89-5P 266001-95-0P 266001-96-1P
266002-00-0P 266002-02-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(carbene **transition metal** catalysts for polymn.)
IT 75-16-1, Methylmagnesium **bromide** 544-97-8, Zinc **dimethyl** 591-51-5, Phenyllithium 768-95-6, Tricyclo[3.3.1.13,7]decan-1-ol 773-82-0, Pentafluorobenzonitrile 2071-20-7, Bis(diphenylphosphino)methane 4411-25-0, Adamantyl isocyanate 4648-54-8, Trimethylsilyl **azide** 21959-01-3 24356-01-2, Zirconium tetrabenzyl 24886-73-5 53380-82-8 70969-28-7 137349-65-6 174749-75-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(carbene **transition metal** catalysts for polymn.)
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; EP 0668295 A1 1995 CAPLUS
(2) Anon; WO 9623010 1996 CAPLUS
(3) Becker; US 5534474 1996 CAPLUS
(4) Cavell; US 09174782 1998
(5) Flores; US 5502128 1996 CAPLUS
(6) George, J; Chem Commun 1998, P849
(7) Michael, D; J or Organ Chem 1993, V445, P245
(8) Richard, A; Inorganic Chemistry 1979, V18(6)
(9) Schlund; US 5707913 1998 CAPLUS
(10) Somogyvari; US 5557023 1996 CAPLUS
(11) Von, R; Z anorg allg Chem 1974, V406, P131
(12) Zboril; US 5589555 1996 CAPLUS
(13) Zucchini, U; J Organometal Chem 1971, V26, P357 CAPLUS

L3 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1998:102992 CAPLUS
DN 128:168981
ED Entered STN: 20 Feb 1998
TI Hydroformylation of olefins in a two-phase system, and **transition metal** diphosphine complexes as catalysts
IN Reetz, Manfred Theodor; Waldvogel, Siegfried
PA Studiengesellschaft Kohle m.b.H., Germany
SO Ger. Offen., 15 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM C08B037-16
ICS C07C045-50; C07C047-00
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 29, 67
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19631322	A1	19980205	DE 1996-19631322	19960802
	CA 2262561	AA	19980212	CA 1997-2262561	19970729
	WO 9805618	A2	19980212	WO 1997-EP4117	19970729
	W: CA, JP, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 923521	A2	19990623	EP 1997-941903	19970729
	EP 923521	B1	20010822		
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE, IE				

	JP 2001506285	T2	20010515	JP 1998-507569	19970729
	AT 204561	E	20010915	AT 1997-941903	19970729
	US 6087481	A	20000711	US 1999-230575	19990127
PRAI	DE 1996-19631322	A	19960802		
	WO 1997-EP4117	W	19970729		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 19631322	ICM	C08B037-16
	ICS	C07C045-50; C07C047-00
DE 19631322	ECLA	C07C045/50; C07C067/347+69/716; C08B037/00M2B
WO 9805618	ECLA	C07C045/50; C07C067/347+69/716; C08B037/00M2B
US 6087481	NCL	536/018.700; 536/120.000; 536/123.100; 568/451.000; 568/454.000
	ECLA	C07C045/50; C07C067/347+69/716; C08B037/00M2B

OS MARPAT 128:168981

AB Aliph. or alicyclic alkenes, either terminal or internal, in an org. phase are hydroformylated in the presence of an aq. phase contg. a catalyst which is a Group VIII metal complex of a β-cyclodextrin deriv. having a (R2PCH2)2N substituent (R = alkyl, aryl) in the 6-position. Thus, β-cyclodextrin was tosylated, converted to the **azide**, reduce to the amine, and treated with Ph2P+(CH2OH)2 Cl- to give 6A-bis(diphenylphosphinomethyl)amino-6A-desoxy-β-cyclodextrin, which was converted to a Co complex and used in hydroformylation of 1-octene at 60°/100 bars for 18 h, producing aldehyde in 95% yield, with n-/iso- ratio 3.38.

ST cobalt diphosphine complex hydroformylation catalyst; cyclodextrin diphosphine deriv cobalt complex

IT Hydroformylation catalysts
(hydroformylation of olefins with cyclodextrin-linked **transition metal** diphosphine complexes as catalysts)

IT Hydroformylation
(two-phase; hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 35138-22-8, Bis(1,5-cyclooctadiene)rhodium tetrafluoroborate
RL: CAT (Catalyst use); USES (Uses)
(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 191103-02-3P
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 191102-94-0P 191103-03-4P 191103-04-5P 191103-06-7P 202815-44-9P 202845-36-1P 202845-37-2P 202845-38-3P 202924-98-9P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 93-53-8P, α-Methylbenzeneacetaldehyde 104-53-0P, Benzenepropanal 111-71-7P, Heptanal 112-44-7P, Undecanal 124-19-6P, Nonanal 872-53-7P, Cyclopentanecarboxaldehyde 925-54-2P, 2-Methylhexanal 926-36-3P, 4,4-Dimethylpentanal 4361-28-8P, Cyclohexanepropanal 5442-00-2P 5664-21-1P, Cyclohexaneethanal 6688-11-5P, Cyclooctanecarboxaldehyde 7786-29-0P, 2-Methyloctanal 10486-19-8P, Tridecanal 17206-62-1P, 2-Methylcyclopentanecarboxaldehyde 17408-48-9P, 2,3,3-Trimethylbutanal 19009-56-4P, 2-Methyldecanal 19269-28-4P, 3-Methylhexanal 22092-54-2P, 2-Ethylpentanal 22858-74-8P, 3-Cyclohexene-1-propanal 27008-12-4P 37596-36-4P, 2-Methyldodecanal

RL: IMF (Industrial manufacture); PREP (Preparation)
(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 100-40-3, 4-Vinylcyclohexene 100-42-5, reactions 111-66-0, 1-Octene 112-41-4, 1-Dodecene 112-62-9, Methyl oleate 142-29-0, Cyclopentene 558-37-2, 3,3-**Dimethyl**-1-butene 592-41-6, 1-Hexene, reactions 693-89-0, 1-Methylcyclopentene 695-12-5, Vinylcyclohexane 763-29-1, 2-Methyl-1-pentene 872-05-9, 1-Decene 931-87-3, cis-Cyclooctene 1192-37-6, Methylenecyclohexane 4490-75-9, N-(2-Mercaptoethyl)phthalimide 7585-39-9, β-Cyclodextrin 7642-09-3, cis-3-Hexene 13269-52-8, trans-3-Hexene 18162-48-6, tert-Butylchlorodimethylsilane 39801-32-6, N-(3-Mercaptopropyl)phthalimide 96776-80-6, Bis(hydroxymethyl)diphenylphosphonium **chloride** 118312-98-4, N-(4-Mercaptobutyl)phthalimide
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 29390-67-8P, 6A-Amino-6A-deoxy-β-cyclodextrin 67217-55-4P 73667-73-9P 98169-85-8P 128262-67-9P 129867-48-7P 191103-00-1P 191103-01-2P 202815-40-5P 202815-41-6P 202815-42-7P 202815-43-8P 202924-95-6P 202924-96-7P 202924-97-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 68-12-2, DMF, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; US 5360939 CAPLUS
(2) Anon; WO 9622267 A1 CAPLUS
(3) Monflier, E; Angew Chem Int Ed Engl 1995, V34(20), PS2269
(4) Monflier, E; Tetrahedron Letters 1995, V36(52), PS9481
(5) Reetz, M; Tetrahedron:Asymmetry 1993, V4(12), PS2405
(6) Sawamura, M; Tetrahedron:Asymmetry 1993, V4(8), PS1829

L3 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1998:5127 CAPLUS
DN 128:88378
ED Entered STN: 07 Jan 1998
TI Polyvinylpyridine chloroaluminum borohydride as a new stable, and efficient reducing agent in organic synthesis
AU Tamami, Bahman; Lakoraj, Moslem Mansour; Yeganeh, Hamid
CS Department of Chemistry, Shiraz University, Shiraz, Iran
SO Iranian Polymer Journal (1997), 6(3), 159-167
CODEN: IPJOFF; ISSN: 1026-1265
PB Polymer Research Center of Iran
DT Journal
LA English
CC 21-2 (General Organic Chemistry)
OS CASREACT 128:88378
AB The unstable chloroaluminum borohydride, Al(BH4)Cl2, is stabilized on poly(vinylpyridine) which is used as an efficient and regenerable polymer supported **transition-metal** borohydride reagent for redn. of variety of org. compds. such as, aldehydes, ketones, acid **chlorides**, epoxides and **azides**. The reagent is unable to reduce, esters, amides, oximes, and

nitro compds.

ST chloroaluminum borohydride polymer supported reducing agent; vinylpyridine polymer support reducing agent; aldehyde redn polymer supported chloroaluminum borohydride; ketone redn polymer supported chloroaluminum borohydride; acid **chloride** redn supported chloroaluminum borohydride; epoxide redn polymer supported chloroaluminum borohydride; **azide** redn polymer supported chloroaluminum borohydride

IT Acid **halides**
RL: RCT (Reactant); RACT (Reactant or reagent)
(acid **chlorides**; use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT Reducing agents
(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT Aldehydes, reactions
Azides
Epoxides
Ketones, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT 66-99-9, 2-Naphthalenecarboxaldehyde 83-33-0, 1-Indanone 89-98-5, 2-Chlorobenzaldehyde 96-09-3, Styrene oxide 98-86-2, Acetophenone, reactions 98-88-4, Benzoyl **chloride** 102-92-1, Cinnamoyl **chloride** 103-79-7, Phenylacetone 103-80-0, Phenylacetyl **chloride** 104-55-2, Cinnamaldehyde 104-87-0, 4-Methylbenzaldehyde 106-23-0, Citronellal 106-90-1 106-91-2 119-52-8, 4,4'-Dimethoxybenzoin 119-53-9, Benzoin 119-61-9, Benzophenone, reactions 120-57-0, Piperonal 120-92-3, Cyclopentanone 121-90-4, 3-Nitrobenzoyl **chloride** 122-01-0, 4-Chlorobenzoyl **chloride** 122-04-3, 4-Nitrobenzoyl **chloride** 122-57-6, Benzalacetone 122-60-1, (Phenoxymethyl)oxirane 122-78-1, Phenylacetaldehyde 123-11-5, 4-Methoxybenzaldehyde, reactions 514-15-8, Apocamphor 591-78-6, 2-Hexanone 622-79-7, Benzyl **azide** 1192-17-2, 2,2-Diethyloxirane 1516-60-5, 1-Azido-4-nitrobenzene 1713-33-3, 1-Methylcyclohexene oxide 2085-88-3, α-Methylstyrene oxide 2142-68-9, 2'-Chloroacetophenone 2788-86-5, p-Chlorostyrene oxide 3296-05-7, 1-Azido-4-chlorobenzene 3669-66-7 6921-40-0, 1-Azidonaphthalene 14901-07-6 18756-01-9 59611-34-6 71559-13-2, 2-Azidocyclohexanol 91890-91-4 170467-19-3 201028-85-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT 25232-41-1DP, Poly(4-vinylpyridine), dichloroaluminum borohydride complex 55874-51-6DP, poly[vinylpyridine]-supported
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT 60-12-8P, Phenethyl alcohol 91-01-0P, Benzhydrol 96-41-3P, Cyclopentanol 97-95-0P, 2-Ethyl-1-butanol 98-85-1P, α-Methylbenzyl alcohol 100-01-6P, p-Nitroaniline, preparation 100-46-9P, Benzyl amine, preparation 100-51-6P, Benzyl alcohol, preparation 104-54-1P 105-13-5P, 4-Methoxybenzyl alcohol 106-22-9P,

Citronellol 106-47-8P, p-Chloroaniline, preparation 134-32-7P, 1-Aminonaphthalene 492-70-6P, 1,2-Diphenylethylene glycol 495-76-1P, Piperonol 589-18-4P, 4-Methylbenzyl alcohol 619-25-0P, 3-Nitrobenzyl alcohol 619-73-8P, 4-Nitrobenzyl alcohol 626-93-7P, 2-Hexanol 698-87-3P, 1-Phenyl-2-propanol 873-63-2P, 3-Chlorobenzyl alcohol 1123-85-9P, β-Methylphenethyl alcohol 1592-38-7P, 2-Naphthalenemethanol 1875-88-3P, 4-Chlorophenethyl alcohol 2761-08-2P 2761-09-3P 4464-76-0P 6180-61-6P, 3-Phenoxy-1-propanol 6351-10-6P, 1-Indanol 6850-38-0P, 2-Aminocyclohexanol 6939-95-3P 7443-70-1P, cis-2-Methylcyclohexanol 7568-93-6P, α-(Aminomethyl)benzyl alcohol 17488-65-2P, 4-Phenyl-3-buten-2-ol 17849-38-6P, 2-Chlorobenzyl alcohol 27008-60-2P, 3-Buten-2-ol, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)- 30884-63-0P 59611-38-0P 126775-65-3P 170467-20-6P 180294-10-4P, 2,7-Nonadien-1-ol, 4,8-**dimethyl**-, (E)- 201028-86-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD

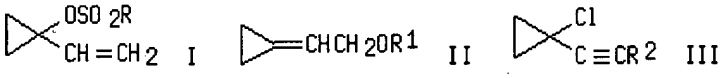
RE

(1) Bacquet, M; Reactive Polymers 1992, V18, P185 CAPLUS
(2) Carey, F; "Advanced Organic Chemistry", Part B 1977
(3) Charles, J; Aldrich Catalogue, "Handbook of Fine Chemicals" 1993-1994
(4) Charles, J; The Aldrich Catalogue of Infrared Spectrum 1970
(5) Firouzabadi, H; Bull Chem Soc Jpn 1997, V70, P155 CAPLUS
(6) Firouzabadi, H; Iran J Sci Tech 1995, V19, P103 CAPLUS
(7) Firouzabadi, H; Synth Commun 1991, V21, P2275 CAPLUS
(8) Firouzabadi, H; Synth Commun 1996, V26, P2429
(9) Fleet, G; Tetrahedron Lett 1981, V22, P675 CAPLUS
(10) Gibson, H; J Chem Soc, Chem Commun 1977, P815 CAPLUS
(11) Gordeev, K; J Org Chem USSR 1985, V21, P2393
(12) Goudarzian, N; Ph D Theses, Shiraz University 1993
(13) Goudgaon, N; Synth Commun 1989, V19, P805 CAPLUS
(14) House, H; Modern Synthesis Reactions 1972
(15) Hudlicky, M; Reduction in Organic Chemistry 1984
(16) Hutchins, R; J Chem Commun 1978, P1088 CAPLUS
(17) Hutchins, R; J Org Chem 1981, V46, P52.4
(18) Hutchins, R; Tetrahedron Lett 1980, V21, P813 CAPLUS
(19) Kabalka, G; Synth Commun 1990, V20, P293 CAPLUS
(20) Kotsuki, H; Bull Chem Soc Jpn 1988, V61, P2684 CAPLUS
(21) Lytte, D; Anal Chem 1952, V24, P1943
(22) Marks, T; Chem Rev 1997, V77, P263
(23) Olson, W; J Inorg Nucl Chem 1958, V7, P228 CAPLUS
(24) Ranu, B; J Chem Soc Commun 1990, P1334 CAPLUS
(25) Ranu, B; J Chem Soc, Perkin Trans (I) 1992, P18881
(26) Sakar, D; J Org Chem 1990, V55, P5799
(27) Scriven, E; Chem Rev 1988, V88, P35
(28) Sherrington, D; Synthesis and Separations Using Functional Polymers 1988
(29) Sorrell, T; Tetrahedron Lett 1978, V28, P2473
(30) Sorrell, T; Tetrahedron Lett 1978, V50, P4985
(31) Takamoto, K; Functional Monomers and Polymers, Synthesis and Applications 1987
(32) Tamami, B; Iran J Chem & Chem Eng in press
(33) Tamami, B; J Chem Research, In press
(34) Tamami, B; J Chem Soc Chem Commun 1994, P1079 CAPLUS
(35) Tamami, B; Synth Commun 1995, V25, P3089 CAPLUS
(36) Weast, R; CRC Handbook 1978
(37) Wigfield, D; Tetrahedron 1979, V35, P449 CAPLUS
(38) Yoon, N; J Org Chem 1987, V52, P564
(39) Yoon, N; Tetrahedron Lett 1983, P5367 CAPLUS

L3 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1992:235110 CAPLUS
DN 116:235110
ED Entered STN: 13 Jun 1992
TI Nucleophilic substitutions of 1-alkenylcyclopropyl esters and 1-alkynylcyclopropyl **chlorides** catalyzed by palladium(0)
AU Stolle, Andreas; Ollivier, Jean; Piras, Pier Paolo; Salaun, Jacques; De Meijere, Armin
CS Inst. Org. Chem., Georg-August-Univ., Goettingen, D-3400, Germany
SO Journal of the American Chemical Society (1992), 114(11), 4051-67
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
CC 24-2 (Alicyclic Compounds)
OS CASREACT 116:235110
GI



AB The 1-ethenylcyclopropyl sulfonates I (R = p-tolyl, Me) and 2-cyclopropylideneethyl esters II (R1 = Ac, CO2Et), readily available from 1-ethoxycyclopropanol, undergo regioselective Pd(0) catalyzed nucleophilic substitution via an unsym. 1,1-dimethylene-π-allyl complex. With stabilized anions (enolates of malonic ester, β-dicarbonyl compds., β-sulfonyl ester, and Schiff bases as well as acetate anion, sulfonamide anion, etc.) the nucleophilic substitution occurs at the terminal vinylic position exclusively, providing cyclopropylideneethyl derivs. as building blocks of high synthetic potential. Competition expts. disclosed that I (R = p-tolyl) and II (R1 = Ac) are more reactive than dimethylallyl acetates. Use of chiral phosphines as ligands in the palladium catalyst can provide optically active methylenecyclopropane derivs. With phenyl-, methyl-, and even n-butylzinc **chloride** as nucleophiles, the reaction apparently proceeds with initial transfer of the org. residue to palladium, followed by reductive elimination entailing tertiary substitution on the cyclopropane ring exclusively; the same type of product is obtained with **azide** and bis(trimethylsilyl)amide. The site of hydride attack to yield redn. products depends on the hydride source. 1-Alkynylcyclopropyl **chlorides** III (R2 = H, Me, Me3Si) react only with organozinc **chlorides** (nonstabilized nucleophiles) to provide mixts. of ethenylidenecyclopropanes and alkynylcyclopropanes, via the σ-palladium complexes, while **chloride** III (R2 = Ph) undergoes mainly redn. Other **transition metal** catalysts (Ni, Mo) also induce substitutions, but with poorer regioselectivity.

ST nucleophilic substitution alkenylcyclopropyl ester alkynylcyclopropyl **chloride**; palladium catalyst nucleophilic substitution; regiochem nucleophilic substitution alkenylcyclopropyl ester; cyclopropane ethylidene

IT Substitution reaction, nucleophilic
(of alkenyl cyclopropyl esters and alkynylcyclopropyl **chlorides**)

IT Regiochemistry
(of nucleophilic substitution reactions of cyclopropyl esters)

IT Substitution reaction catalysts

(nucleophilic, palladium complexes, for alkenylcyclopropyl esters and alkynylcyclopropyl **chlorides**)

IT 13837-45-1, 1-Ethoxycyclopropanol
RL: PROC (Process)
(Grignard propenylation of)

IT 557-93-7, 2-Bromopropene
RL: RCT (Reactant); RACT (Reactant or reagent)
(Grignard reaction of, with cyclopropanone hemiacetal)

IT 22935-31-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(acylation of)

IT 57951-60-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(attempted substitution reaction of)

IT 7681-65-4, Cuprous **iodide**
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for Grignard methylation of (phenylethynyl)cyclopropyl carbonate)

IT 14264-16-5, Bis(triphenylphosphine)nickel dichloride
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for phenylation of vinylcyclopropyl tosylate)

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for substitution reactions of alkenylcyclopropyl and cyclopropylidene Et esters)

IT 32005-36-0
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for substitution reactions of alkenylcyclopropyl or cyclopropylidene Et esters and alkynylcyclopropyl **chlorides**)

IT 74592-36-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydride redn. or methylation of)

IT 69555-14-2 112519-20-7 130715-13-8 130715-14-9 130715-15-0 130715-16-1 130715-17-2 130715-18-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(lithiation and substitution reaction of, with alkenylcyclopropyl ester)

IT 82979-27-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(methylation-dehydrochlorination of)

IT 1663-45-2, Dppe
RL: CAT (Catalyst use); USES (Uses)
(palladium catalysts contg., for substitution reactions of alkynylcyclopropyl and cyclopropylidene Et esters)

IT 70624-84-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and acetylation of)

IT 28974-51-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and acylation or oxidn. of)

IT 136964-30-2P 136964-33-5P 136964-36-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and borohydride redn. of)

IT 57951-63-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and ethoxycarbonylation or chlorodehydroxylation of)

IT 136964-35-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and ketenimine cleavage of)

IT 139633-92-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and sapon. of)

IT 758-66-7P 22539-80-6P 73680-08-7P 130715-07-0P 130715-08-1P 139633-88-8P 139633-90-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and substitution reaction of, palladium catalyst for)

IT 73680-10-1P 130715-09-2P 136964-21-1P 136964-25-5P 136964-29-9P 136964-42-6P 139633-85-5P 139633-87-7P 139633-89-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and substitution reaction of, palladium catalysts for)

IT 75111-08-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and substitution reaction of, redn. in)

IT 40791-85-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and tosylation of)

IT 73680-09-8P 136964-24-4P 136964-41-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and trifluoroacetylation of)

IT 13905-10-7P 16958-35-3P 18712-30-6P 21777-85-5P 42311-14-8P 50462-85-6P 69447-96-7P 81798-12-1P 136964-26-6P 136964-27-7P 136964-28-8P 136964-31-3P 136964-32-4P 136964-34-6P 136964-37-9P 136964-38-0P 139633-86-6P 139633-95-7P 139633-96-8P 139633-97-9P 139633-98-0P 139633-99-1P 139634-00-7P 139634-01-8P 139655-48-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 32364-41-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn., reaction with acetate, and substitution reactions of)

IT 127-08-2, Potassium acetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with (tosyloxy)ethenylcyclopropane)

IT 76189-56-5, (S)-(-)-BINAP
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of allylcyclopropyl tosylate with malonate in presence of)

IT 38387-33-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, of palladium catalyst for)

IT 24509-88-4 83662-45-7 130715-11-6 130715-12-7 139633-91-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, palladium catalyst for)

IT 765-69-5 1074-82-4, Potassium phthalimide 42930-39-2, Butylzinc **chloride** 52755-31-4 60729-65-9 63336-41-4 107201-05-8 139634-02-9 139634-04-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with alkenylcyclopropyl ester)

IT 5158-46-3, Methyl zinc **chloride**
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with alkynyl cyclopropyl **chloride**)

IT 1191-16-8, 3,3-Dimethylallyl acetate

RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reactions of, of palladium catalysts for)

IT 996-82-7, Sodium diethyl malonate 18424-76-5, Sodium **dimethyl** malonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reactions of, with alkenylcyclopropyl and cyclopropylidene Et esters)

IT 28557-00-8, Phenylzinc **chloride**
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reactions of, with alkenylcyclopropyl ester of alkynylcyclopropyl **chloride**)

IT 81834-42-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(tosylation of)

L3 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1988:562253 CAPLUS
DN 109:162253
ED Entered STN: 28 Oct 1988
TI **Transition metal** complexes of substituted 2,2'-biquinolines. Part 1. The crystal and molecular structures of [8,8'-bis(aminomethyl)-2,2'-biquinoline]chlorocopper(II) **chloride**
AU Chung, Lap Yan; Constable, Edwin C.; Lewis, Jack; Raithby, Paul R.; Kaye, Perry T.
CS Univ. Chem. Lab., Cambridge, CB2 1EW, UK
SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1988), (8), 2121-5
CODEN: JCDTBI; ISSN: 0300-9246
DT Journal
LA English
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75
AB 8,8'-Bis(aminomethyl)-2,2'-biquinoline (L) was prepd. in 41% overall yield from 8,8'-**dimethyl**-2,2'-biquinoline by conversion to the 8,8'-bis(bromomethyl) deriv. with N-bromosuccinimide, followed by reaction with NaN3 and redn. with LiAlH4. [Cu(L)Cl]Cl and [Mn(L)Cl2] were prepd. and structurally characterized. by x-ray crystallog. The Cu is in a distorted 5-coordinate square-based pyramidal environment in [Cu(L)Cl]Cl with the coordinated Cl occupying the axial site; in contrast, Mn complex exhibits a distorted octahedral geometry about the metal.
ST crystal structure copper manganese aminomethylbiquinoline; structure copper manganese aminomethylbiquinoline complex; quinoline aminomethylbi **transition metal** complex; **transition metal** aminomethylbiquinoline complex; nickel aminomethylbiquinoline complex; zinc aminomethylbiquinoline complex; cobalt aminomethylbiquinoline complex
IT Crystal structure
Molecular structure
(of copper and manganese aminomethylbiquinoline complexes)
IT **Transition metals**, compounds
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(aminomethylbiquinoline complexes, prepn. and crystal structures of)
IT 116886-89-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and ESR of)
IT 116886-84-1P 116886-85-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal structure of)
IT 116894-18-9P, 8,8'-Bis(azidomethyl)-2,2'-biquinoline

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and redn. of)

IT 110589-45-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. from dimethylbiquinoline and bromosuccinimide and benzoylperoxide and reaction of, with sodium **azide**)

IT 116886-83-0P 116886-87-4P 116886-91-0P 116907-08-5P 116914-64-8P, [2,2'-Biquinoline]-8,8'-dimethanamine
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 1160-86-7, 8,8'-**Dimethyl**-2,2'-biquinoline
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromosuccinimide and benzoylperoxide)

=> **file stnguide**

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	48.06	50.58

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-7.30	-7.30

FILE 'STNGUIDE' ENTERED AT 08:39:44 ON 31 OCT 2005
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Oct 28, 2005 (20051028/UP).

=> **file caplus**

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.30	50.88

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-7.30

FILE 'CAPLUS' ENTERED AT 08:42:27 ON 31 OCT 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1907 - 31 Oct 2005 VOL 143 ISS 19
FILE LAST UPDATED: 30 Oct 2005 (20051030/ED)

```
Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

http://www.cas.org/infopolicy.html

=> d his

     (FILE 'HOME' ENTERED AT 08:30:35 ON 31 OCT 2005)

     FILE 'CAPLUS' ENTERED AT 08:37:39 ON 31 OCT 2005
L1        11392 S AZIDE AND (HALIDE OR FLUORIDE OR BROMIDE OR CHLORIDE OR IODID
L2          162 S L1 AND TRANSITION METAL
L3           10 S L2 AND DIMETHYL

     FILE 'STNGUIDE' ENTERED AT 08:39:44 ON 31 OCT 2005

     FILE 'CAPLUS' ENTERED AT 08:42:27 ON 31 OCT 2005

=> s l1 and propellant
         20214 PROPELLANT
         20173 PROPELLANTS
         25310 PROPELLANT
                 (PROPELLANT OR PROPELLANTS)
L4          69 L1 AND PROPELLANT

=> d l4 1-69 ti

L4   ANSWER 1 OF 69  CAPLUS  COPYRIGHT 2005 ACS on STN
 Citing
References
TI   Model and pilot plant process design for glycidyl azide polymer (GAP)

L4   ANSWER 2 OF 69  CAPLUS  COPYRIGHT 2005 ACS on STN
 Citing
References
TI   Methods and compositions for increasing the efficacy of
     biologically-active ingredients such as antitumor agents

L4   ANSWER 3 OF 69  CAPLUS  COPYRIGHT 2005 ACS on STN
 Citing
References
TI   A novel method for extraction and analysis of gunpowder residues on
     double-side adhesive coated stubs

L4   ANSWER 4 OF 69  CAPLUS  COPYRIGHT 2005 ACS on STN
 Citing
References
TI   High energy binders: Glycidyl azide and allyl azide polymer

L4   ANSWER 5 OF 69  CAPLUS  COPYRIGHT 2005 ACS on STN
 Citing
References
TI   Synthesis and properties of 1,7-diazido-2,4,6-trinitrazaheptane

L4   ANSWER 6 OF 69  CAPLUS  COPYRIGHT 2005 ACS on STN
 Citing
References
TI   High-energy propellant with reduced hydrogen chloride pollution
     containing ammonium dinitramide oxidizer and energetic binders and
```

plasiticizers

L4 ANSWER 7 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Polymeric binders for gas-generating compositions for inflation of vehicle airbags

L4 ANSWER 8 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Preparation of 5,5'-bi-1H-tetrazole diammonium salts from hydrazine hydrate and dicyan useful as gas generating agents for airbags

L4 ANSWER 9 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Synthesis of acyloxy- and **azide**-terminated polyglycidyl **azide** as energetic plasticizer for **propellants** and pyrotechnics

L4 ANSWER 10 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Ozone degradation study of novel chain extended energetic polymers containing carbon-carbon double bonds

L4 ANSWER 11 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Two-step method for manufacture of 5,5'-bi-(1H-tetrazole) diammonium salt as inflating composition for vehicle airbags

L4 ANSWER 12 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Clean synthesis of energetic materials using solid-supported reactions and related technologies

L4 ANSWER 13 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI High-nitrogen transition metal nitro or nitrito complexes in non-**azide** **propellants** for inflation of vehicle airbags

L4 ANSWER 14 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Airbag inflators for use with gas generating compositions containing guanidines

L4 ANSWER 15 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Cold-burning ammonium nitrate-containing non-**azide**-based gas generating compositions for airbag inflation

L4 ANSWER 16 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Non-**azide** gas generator composition, especially for inflation of vehicle airbags, containing ammonium **chloride** heat sink

L4 ANSWER 17 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Acrylate- and substituted acrylate-terminated energetic polyoxyalkylenes as binders for **propellants** and explosives

L4 ANSWER 18 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Fast neutron activation analysis of high energy materials and polymers

L4 ANSWER 19 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Synthesis of high-molecular weight glycidyl **azide** polymer for **propellant** binders

L4 ANSWER 20 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Process of coating boron particles and effect on characteristics of surface and combustion

L4 ANSWER 21 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Droplet combustion, microexplosion, and sooting characteristics of several energetic liquid **propellants**

L4 ANSWER 22 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Desensitization of energetic materials by forming amorphous compounds

L4 ANSWER 23 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Surface coating of boron powder and its effect

L4 ANSWER 24 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Gas-generating compositions using dicyanamide salts as fuel

L4 ANSWER 25 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Pyrotechnic sheet material

L4 ANSWER 26 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Burning rate characteristics of GAP/AN **propellant**

L4 ANSWER 27 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Study on the catalytic thermal decomposition of sodium **azide** and its correlation with the burning rates of nitrogen-generating **propellants**

L4 ANSWER 28 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Recent advances in fire extinguishing pyrotechnics

L4 ANSWER 29 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI A process for producing energetic polymers starting with hydroxy-terminated polyglycidyl nitrate

L4 ANSWER 30 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Process and catalysts for the preparation of azidohydrocarbons.

L4 ANSWER 31 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Combustion study of boron-based fuel-rich solid **propellant**

L4 ANSWER 32 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Bond analysis of coated boron powder

L4 ANSWER 33 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Pyrotechnic sheet materials, their manufacture, and inflators for vehicle occupant restraint systems comprising the sheet materials

L4 ANSWER 34 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Manufacture of **azide**-terminated azido compound for **propellants** and explosives

L4 ANSWER 35 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI GAP/AN/AP/aluminum-magnesium **propellants** for low pollution and waste cost and their application to Φ70mm motor

L4 ANSWER 36 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Combustion behavior and thermophysical properties of metal-based solid fuels

L4 ANSWER 37 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Burning-rate enhancement of organic diazide **propellants**. Dihalide addition and pressure elevation

L4 ANSWER 38 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Synthesis of a diazido-terminated glycidyl **azide** polymer as plasticizer

L4 ANSWER 39 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI **Propellants** for high-energy decomposition acceleration

L4 ANSWER 40 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Performance-oriented packaging standards; changes to classification, hazard communication, packaging and handling requirements based on UN standards and agency initiative

L4 ANSWER 41 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI 1,5-Diazido-3-nitrazapentane and its preparation

L4 ANSWER 42 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Synthesis of polymers containing pseudohalide groups by cationic polymerization. 2. Copolymerization of 3,3-bis(azidomethyl)oxetane with substituted oxetanes containing **azide** groups

L4 ANSWER 43 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Glycidyl **azide** polymer binder for **propellants** and its preparation

L4 ANSWER 44 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Synthesis of novel energetic compounds. 8. Electrosynthesis of azidodinitromethyl compounds

L4 ANSWER 45 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Hydroxyl-terminated epichlorohydrin polymers

L4 ANSWER 46 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Aerothermochemical studies of energetic liquid materials: 3. Approximate determination of some thermophysical and thermochemical properties of organic **azides**

L4 ANSWER 47 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI N- and O-alkylations of nitro-substituted 1,3-diphenylureas: preparations of **propellant** stabilizer derivatives

L4 ANSWER 48 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Composite-modified double-base **propellants** with glycidyl **azide** polymer replacement for nitroglycerin plasticizer

L4 ANSWER 49 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing References
TI Gas-generating material

L4 ANSWER 50 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Polyazido esters

L4 ANSWER 51 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Azido derivatives of pentaerythritol

L4 ANSWER 52 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Tris(2-azidoethyl)amine

L4 ANSWER 53 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI 3,5,5-Trinitro-3-azaheptane-1,7-diol

L4 ANSWER 54 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Gas generator for automobile safety bag inflation

L4 ANSWER 55 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Gas generant **propellants**

L4 ANSWER 56 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Cooled gas generating solid **propellants**

L4 ANSWER 57 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Coolant additives for nitrogen-generating solid **propellants**

L4 ANSWER 58 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI **Propellant** for automobile safety bag

L4 ANSWER 59 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Reduction of toxicity of **propellant** gas

L4 ANSWER 60 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Monofunctional diferrocenyl compounds

L4 ANSWER 61 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing References
TI Nontoxic, noncorrosive, odorless gas generating composition

L4 ANSWER 62 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Composition for inflation of safety bags in vehicles

L4 ANSWER 63 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Low-temperature, nitrogen gas-generating composition

L4 ANSWER 64 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Alkali metal borazides for addition to **propellants**

L4 ANSWER 65 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Nitraza diisocyanates

L4 ANSWER 66 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Polynitro compounds

L4 ANSWER 67 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI 3,3,5,5,7,7-Hexanitro-1,9-nonane diisocyanate

L4 ANSWER 68 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Combustion of explosives

L4 ANSWER 69 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Citing References
TI Combustion of explosives

=> d 14 14 26 28 37 39 46 49 54 55 56 57 59 61 62 63 68 69 all

L4 ANSWER 14 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Full Text | Citing References
AN 2000:98440 CAPLUS
DN 132:139455
ED Entered STN: 11 Feb 2000
TI Airbag inflators for use with gas generating compositions containing guanidines
IN Cabrera, Raul; Cezary, Grzelczyk
PA Breed Automotive Technology, Inc., USA
SO PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DT Patent
LA English

IC ICM B60R021-26
ICS C06B031-12
CC 50-1 (Propellants and Explosives)
Section cross-reference(s): 47, 59
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000006427	A1	20000210	WO 1999-US14943	19990630
	W: BR, CA, CZ, DE, GB, JP, KR, MX, PL, RU				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6123359	A	20000926	US 1998-122213	19980725
	EP 1098791	A1	20010516	EP 1999-938713	19990630
	R: DE, ES, FR, GB, IT				
PRAI	US 1998-122213	A	19980725		
	WO 1999-US14943	W	19990630		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2000006427	ICM	B60R021-26
	ICS	C06B031-12
WO 2000006427	ECLA	B01D039/10; B60R021/26D2; C06D005/06
US 6123359	NCL	280/741.000; 149/036.000; 149/062.000; 149/076.000
	ECLA	B01D039/10; B60R021/26D2; C06D005/06

AB An inflator for a vehicle airbag employing non-**azide** gas generating compns. comprises an igniter and filter. The new filter for airbag inflators is a metal ribbon coiled within the inflator housing. The metal ribbon comprises ≥1 segment of apertures and a segment of expanded metal.

ST airbag inflator gas generator guanidine

IT Airbags (protective)
Gas generators
Igniters
Oxidizing agents
Propellants (fuels)
Pyrotechnic compositions
(airbag inflators with guanidine-contg. gas generating compns.)

IT Filters
(metal-ribbon; airbag inflators with guanidine-contg. gas generating compns.)

IT 1309-37-1, Iron oxide (Fe2O3), uses 11104-65-7, Copper chromite
RL: CAT (Catalyst use); USES (Uses)
(airbag inflators with guanidine-contg. gas generating compns.)

IT 50-00-0, Formaldehyde, formation (nonpreparative) 71-43-2, Benzene, formation (nonpreparative) 74-82-8, Methane, formation (nonpreparative) 74-90-8, Hydrogen cyanide, formation (nonpreparative) 124-38-9, Carbon dioxide, formation (nonpreparative) 630-08-0, Carbon monoxide, formation (nonpreparative) 7446-09-5, Sulfur dioxide, formation (nonpreparative) 7647-01-0, Hydrogen **chloride**, formation (nonpreparative) 7664-41-7, Ammonia, formation (nonpreparative) 10102-43-9, Nitric oxide, formation (nonpreparative) 10102-44-0, Nitrogen dioxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(airbag inflators with guanidine-contg. gas generating compns.)

IT 506-93-4, Guanidine nitrate 556-88-7, Nitroguanidine 4000-16-2, Triaminoguanidine nitrate 7631-99-4, Sodium nitrate, uses 7697-37-2D, Nitric acid, alkali metal/alk. earth salts, uses 7757-79-1, Potassium nitrate, uses 7790-98-9, Ammonium perchlorate 10042-76-9, Strontium nitrate 10308-82-4 37160-07-9, Diaminoguanidine nitrate 71816-39-2, Boron nitrate (B(NO3)3)

RL: TEM (Technical or engineered material use); USES (Uses)
(airbag inflators with guanidine-contg. gas generating compns.)
IT 7732-18-5, Water, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(vapor; airbag inflators with guanidine-contg. gas generating compns.)
RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adamini; US 5806888 A 1998
(2) Allard; US 5104466 A 1992 CAPLUS
(3) Armstrong; US 5551724 A 1996
(4) Canterberry; US 5765866 A 1998
(5) Cunningham; US 5443286 A 1995
(6) Faigle; US 5609360 A 1997
(7) Fulmer; US 5503806 A 1996 CAPLUS
(8) Hock; US 5665131 A 1997
(9) Knowlton; US 5739460 A 1998
(10) Lenzen; US 4858951 A 1989
(11) Lundstrom; US 5756929 A 1998 CAPLUS
(12) Plantif; US 3958949 A 1976 CAPLUS
(13) Scheffee; US 5861571 A 1999 CAPLUS
(14) Shiki; US 3904221 A 1975 CAPLUS
(15) Yamato; US 5773754 A 1998 CAPLUS

L4 ANSWER 26 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1995:719551 CAPLUS
DN 123:174350
ED Entered STN: 04 Aug 1995
TI Burning rate characteristics of GAP/AN **propellant**
AU Kato, Kazushige; Nakashita, Goro
CS Aichi Works, NOF Corp., Aichi, 470-23, Japan
SO Kayaku Gakkaishi (1995), 56(3), 130-4
CODEN: KAGAEA; ISSN: 1340-2781
DT Journal
LA Japanese
CC 50-1 (Propellants and Explosives)
Section cross-reference(s): 67
AB The burning rate characteristics of **propellant** generating less HCl, which contains ammonium nitrate (AN) as oxidizer and glycidyl **azide** polymer (GAP) as binder, was studied to modify its burning rate characteristics for practical use. The burning rate increased when a small amt. of ammonium perchlorate (AP) was added. When the wt. ratio of AP/AN is 1.0:1, the diffusion flame of AP becomes the rate detg. step at 4 MPa pressure and the pressure exponent of the burning rate decreased. When Fe2O3 is added to GAP/AN/AP **propellant**, the burning rate and the pressure exponent at <5 MPa pressure increased, and the pressure exponent decreased at higher pressure. This was caused by the thermal decompn. rate of AP increased by the Fe2O3 which worked as catalyst.
ST **propellant** burning rate GAP AN; glycidyl **azide** polymer **propellant** burning rate; ammonium nitrate GAP **propellant**
IT Combustion
(burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)
IT Combustion catalysts
(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)
IT **Propellants**

(solid, burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 143178-24-9, Glycidyl **azide** polymer
RL: TEM (Technical or engineered material use); USES (Uses)
(binder, **propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 7647-01-0, Hydrogen **chloride**, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formation of; in combustion of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 1309-37-1, Ferric oxide, uses
RL: CAT (Catalyst use); USES (Uses)
(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 7790-98-9, Ammonium perchlorate
RL: MOA (Modifier or additive use); USES (Uses)
(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 6484-52-2, Ammonium nitrate, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

L4 ANSWER 28 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1995:202130 CAPLUS
DN 122:85000
ED Entered STN: 19 Nov 1994
TI Recent advances in fire extinguishing pyrotechnics
AU Reed, R.; Brady, V. L.; Hitner, J. M.
CS Naval Air Warfare Center Weapons Division, China Lake, CA, 93555-6001, USA
SO Proceedings of the International Pyrotechnics Seminar (1994), 20TH, 815-28
CODEN: PPYSD7; ISSN: 0270-1898
DT Journal
LA English
CC 50-3 (Propellants and Explosives)
AB Compns. which undergo flameless deflagration to produce N2 and HBr were prepd. which contain an azido binder, solid tetrazoles, and aryl **bromides**. Decompn. of azido and tetrazolyl moieties release sufficient heat to provide the thermochem. driving force for deflagration. Calcns. indicated that the **bromide** is converted into HBr. A formulation contg. 50% decabromodiphenyl ether and 50% binder and tetrazole deflagrates to produce a gaseous mixt. contg. 42 wt.% HBr. Gas compns. at 14.7, 100, 500, and 1000 psi were calcd. using an enthalpy point technique assuming const. entropy. A typical compn. burning at a chamber pressure of 1000 psi and expanded to 14.7 psi has a calcd. exit temp. of 922°K. If the gases were passed through a bed contg. metallic salts of perfluorooctanoic acid, the gases would be cooled, and these salts would decomp. endothermically at relatively low temps. (250°) to yield a denser gas composed of perfluoroheptene and CO2. These calcns. assume that the thermodn. most stable products were formed. Since there is no flame, it is unlikely that the reactions forming these products have gone

to completion. A typical compn. contains the glycidyl **azide** polymer (GAP) as an elastomeric binder (42% N) and the solid fillers ammonium-5-nitraminotetrazole (57% N) and decabromodiphenyl ether (83% Br). Other binders investigated included azido and nitrato polyoxetanes. Plasticizers such as the azido-terminated oligomer of GAP (54% N) were also used to increase the nitrogen content of the binder. The homopolymer of BAMO (3,3-bis[azidomethyl]oxetane) (50% N) was evaluated.

ST flameless deflagration pyrotechnic fire extinguisher; hydrogen **bromide** fire extinguisher pyrotechnic; perfluorheptene fire extinguisher pyrotechnic; carbon dioxide fire extinguisher pyrotechnic

IT Gas generators
(flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT Combustion
(deflagration, flameless; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT Fire
(extinguishers, flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT 59595-53-8 94901-15-2 121150-74-1 143178-24-9, Glycidyl **azide** polymer
RL: TEM (Technical or engineered material use); USES (Uses)
(binder, gas generator compns. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT 1163-19-5, Decabromodiphenyl ether 32534-81-9, Pentabromodiphenyl ether 160612-50-0, DE 62
RL: TEM (Technical or engineered material use); USES (Uses)
(**bromide** source, gas-generator compn. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT 124-38-9, Carbon dioxide, formation (nonpreparative) 355-63-5, 1-Perfluoroheptene 7726-95-6, Bromine, formation (nonpreparative) 7727-37-9, Nitrogen, formation (nonpreparative) 10035-10-6, Hydrogen **bromide**, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formation; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT 335-67-1D, metal salts 335-95-5, Sodium perfluorooctanoate 603-33-8, Triphenylbismuth 12029-98-0, Iodine oxide (I2O5) 13446-09-8, Ammonium iodate (NH4IO3) 90430-60-7, Calcium perfluorooctanoate
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(gas-generator compns. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

IT 57877-65-3 160545-45-9
RL: TEM (Technical or engineered material use); USES (Uses)
(**propellant**, gas-generator compns. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

L4 ANSWER 37 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1992:553975 CAPLUS
DN 117:153975
ED Entered STN: 17 Oct 1992
TI Burning-rate enhancement of organic diazide **propellants**. Dihalide addition and pressure elevation
AU Lee, A.; Jiang, Y. J.; Zhu, D. L.; Law, C. K.
CS Princeton Univ., Princeton, NJ, 08544, USA

SO AIAA Journal (1992), 30(5), 1298-303
CODEN: AIAJAH; ISSN: 0001-1452
DT Journal
LA English
CC 50-1 (Propellants and Explosives)
AB Enhanced droplet combustion of diazidoalkane **propellants** was obsd. at elevated pressures in the presence of 5-10 vol.% α,ω-dihaloalkane additives, which primarily promoted droplet microexplosion and greatly reduced droplet lifetime. Although the results were compn. dependent, similar results were not obtained for twice as much monohalide or monoazide; the results were obsd. for all dihalides investigated, regardless of their volatilities or choice of halogens. Droplet vaporization expts. performed under nonoxidizing conditions at elevated pressures showed that the microexplosion state was minimally affected but the gasification rate was significantly enhanced. This enhanced rate was, as for oxidizing conditions, not obsd. for monoazides or hydrocarbons of equal volatility. The mechanism of enhanced combustion was not identified.
ST azidoalkane **propellant** combustion enhancement; **halide** alkylene azidoalkane combustion additive; alkyl dihalide azidoalkane combustion additive; droplet microexplosion azidoalkane **propellant** combustion
IT Combustion
(of α,ω-diazidoalkane **propellants**, α,ω-dihaloalkane promoters for, for enhanced droplet microexplosions)
IT **Propellants**
(α,ω-diazidoalkanes, combustion of, α,ω-dihaloalkane promoters for, for enhanced droplet microexplosions)
IT **Azides**
RL: USES (Uses)
(bis-, alkylene, **propellants**, combustion of, α,ω-dihaloalkane promoters for)
IT Explosion
(micro-, of droplets, in combustion of α,ω-diazidoalkane **propellants**, promotion of, with α,ω-dihaloalkanes)
IT Alkylene **halides**
RL: USES (Uses)
(α,ω-, combustion promoters, for α,ω-diazidoalkane **propellants**)
IT 7782-44-7
RL: USES (Uses)
(combustion, of α,ω-diazidoalkane **propellants**, α,ω-dihaloalkane promoters for, for enhanced droplet microexplosions)
IT 109-64-8, 1,3-Dibromopropane 110-56-5, 1,4-Dichlorobutane 111-24-0, 1,5-Dibromopentane 627-31-6, 1,3-Diiodopropane 629-09-4, 1,6-Diiodohexane 821-76-1 2162-98-3, 1,10-Dichlorodecane 4549-32-0, 1,8-Dibromooctane
RL: USES (Uses)
(promoter, for droplet microexplosions, in enhanced combustion of α,ω-diazidoalkane **propellants**)
IT 24345-72-0
RL: USES (Uses)
(**propellant**, combustion of, droplet microexplosion enhanced in, with α,ω-dihaloalkanes)
IT 17607-21-5, 1,5-Diazidopentane
RL: USES (Uses)
(**propellant**, combustion of, droplet microexplosion

enhancement in, with α,ω-dihaloalkanes)

L4 ANSWER 39 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1992:197222 CAPLUS
DN 116:197222
ED Entered STN: 16 May 1992
TI **Propellants** for high-energy decomposition acceleration
IN Mitarai, Yoshiaki
PA Asahi Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C06D005-00
ICS C06D005-04; C06D005-10
CC 50-1 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03295888	A2	19911226	JP 1990-94162	19900411
PRAI	JP 1990-94162		19900411		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 03295888	ICM	C06D005-00
	ICS	C06D005-04; C06D005-10

AB In solid **propellants** contg. aliph. polyether binders having **azide** side chains, the water content in the binder is controlled to 0.01-18%. **Azide** groups are completely decompd. in the **propellants**.
ST **azide** decompn **propellant** water content
IT **Propellants**
(solid, contg. **azide** side-chained binder, water content control in)
IT 7732-18-5, Water, miscellaneous
RL: MSC (Miscellaneous)
(content control of, in **propellants** contg. **azide** side-chained binders, for higher energy)
IT 140895-69-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with sodium **azide**, **propellants** from, water content control in)
IT 104493-28-9P
RL: PREP (Preparation)
(**propellant**, prepn. of, water content control in)
IT 98-59-9, p-Toluenesulfonic acid **chloride**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with hydroxymethyl(methyl)oxetane, **propellants** from, water content control in)
IT 26628-22-8, Sodium **azide**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with methyltoluenesulfonic acid methyloxetane, **propellants** from, water content control in)
IT 3143-02-0, 3-Hydroxymethyl-3-methyloxetane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with toluenesulfonic acid **chloride**, **propellants** from, water content control in)

L4 ANSWER 46 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1990:142320 CAPLUS
DN 112:142320
ED Entered STN: 13 Apr 1990
TI Aerothermochemical studies of energetic liquid materials: 3. Approximate determination of some thermophysical and thermochemical properties of organic **azides**
AU Lee, A.; Law, C. K.; Makino, A.
CS Dep. Mech. Eng., Univ. California, Davis, CA, 95616, USA
SO Combustion and Flame (1989), 78(3-4), 263-74
CODEN: CBFMAO; ISSN: 0010-2180
DT Journal
LA English
CC 50-2 (Propellants and Explosives)
Section cross-reference(s): 51, 69
AB Through either direct measurement or group additivity calcn., the densities, normal b.ps., latent heats of vaporization, limits of superheat, enthalpies of formation, combustion, and decompn., and adiabatic flame temps. are approx. detd. for the mono- and di-substituted alkyl **azides**, which have enhanced droplet gasification rates and microexplosion events. Similar detns. are done for some alkyl **halides**, esp. alkyl **bromides**; the similarity of their properties to those of the org. **azides** are noted. Implications of the thermophys. and thermochem. properties for the potential of the **azides** and **halides** as jet fuels and jet-fuel additives are discussed.
ST energetic alkyl **azide halide**; combustion alkyl **azide halide**; explosion alkyl **azide halide**; thermochem alkyl **azide halide**
IT Fuels, jet aircraft
(alkyl **azides** and **halides** in, thermochem. properties in relation to)
IT Alkyl **azides**
RL: USES (Uses)
(energetic materials, thermochem. properties of)
IT **Propellants**
(org. **azides** and **halides**, thermochem. properties of)
IT Alkyl **bromides**
Alkyl **halides**
RL: USES (Uses)
(thermochem. properties of, as fuels)

L4 ANSWER 49 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1987:639342 CAPLUS
DN 107:239342
ED Entered STN: 25 Dec 1987
TI Gas-generating material
IN Goetz, George W.; Hamilton, Brian K.
PA TRW Automotive Products, Inc., USA
SO U.S., 7 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C06B045-34
INCL 149007000
CC 50-1 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4698107	A	19871006	US 1986-946705	19861224
	DE 3727822	A1	19880707	DE 1987-3727822	19870820
	DE 3727822	C2	19890223		
	CA 1286112	A1	19910716	CA 1987-545722	19870831
	JP 63171635	A2	19880715	JP 1987-230863	19870914
	JP 04055735	B4	19920904		
PRAI	US 1986-946705	A	19861224		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4698107	ICM	C06B045-34
	INCL	149007000
US 4698107	NCL	149/007.000; 102/286.000; 102/531.000; 149/019.300; 149/035.000; 149/041.000; 149/061.000; 280/728.100; 280/741.000

AB Gas-generating structures for inflating vehicle air bags comprise a grain of **azide**-based material which generates gas upon combustion, 1-6 wt.% graphite fibers 3-15 μ in diam. and 0.04-0.125 in. long, and, on the grain, an ignition-enhancing coating comprising a alkali metal **azide**, i.e. NaN3, 20-50, an inorg. oxidizer, i.e. NaNO3, 25-35, a fluoroelastomer binder 10-15, Mg 15-25, and fumed SiO2 1-3 wt.%. The grain in the structure consists primarily of NaN3 and Fe oxide and has passages extending axially through the grain and intersecting the opposite axial ends. The graphite fibers increase the burn rate of the grains by 40% compared to those without the fibers and at decreased temps. Actuation of the squib ignites all surfaces nearly simultaneously and the coating ingredients insure its reliable ignition while combustion of the ingredients provides the heat transfer to ignite the grains. The coating controls the heat generation at the grain-filter interface and prevents filter damage by overheating. The coating does not burn so fast as to build up pressure in the grain passages which leads to grain breaking or cracking.

ST **azide propellant** coating air bag; sodium **azide** coating **propellant**; sodium nitrate coating **propellant**; silica fume coating **propellant**

IT Gas generators
(for automotive air bags, **azide propellant** grains for, coating with **azide**-oxidizer compns. for increased burn rate)

IT Bentonite, uses and miscellaneous
RL: USES (Uses)
(in sodium **azide propellant** grains, coated with **azide**-oxidizer compns., for air bag inflation)

IT **Azides**
RL: USES (Uses)
(**propellant** grains, coating with **azide**-oxidizer compns. for rapid burn rate for air bag inflation)

IT Coating materials
(sodium **azide** and sodium nitrate, on **azide propellant** grains for air bag inflation)

IT Safety devices
(airbags, automotive, **azide propellant** grains for, coating with **azide**-oxidizer compns. for increased burn rate)

IT **Propellants**
(gas-generating, for air bag inflation, coating of **azide**, with **azide**-oxidizer compns., for increased burn rate)

IT Carbon fibers, uses and miscellaneous
RL: USES (Uses)
(graphite, in **azide propellant** grains, for air bag

inflation, for high burn rate)
IT Rubber, synthetic
RL: USES (Uses)
(hexafluoropropene-vinylidene **fluoride**, binders, in **azide**-oxidizer coatings on **azide propellants** for air bag inflation)
IT 7440-44-0 7782-42-5
RL: USES (Uses)
(carbon fibers, graphite, in **azide propellant** grains, for air bag inflation, for high burn rate)
IT 7631-86-9, uses and miscellaneous
RL: USES (Uses)
(colloidal, in **azide**-oxidizer coatings on **azide propellant** grains for air bag inflation)
IT 7439-95-4, Magnesium, uses and miscellaneous
RL: USES (Uses)
(in **azide**-oxidizer coatings, for **azide propellant** grains for air bag inflation)
IT 1332-37-2, uses and miscellaneous
RL: USES (Uses)
(in sodium **azide propellant** grains, coated with **azide**-oxidizer compns., for air bag inflation)
IT 7631-99-4, uses and miscellaneous 26628-22-8, Sodium **azide**
RL: USES (Uses)
(**propellant** grains contg., and coatings therefor, for air bag inflation)

L4 ANSWER 54 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1983:146067 CAPLUS
DN 98:146067
ED Entered STN: 12 May 1984
TI Gas generator for automobile safety bag inflation
PA Nippon Oils & Fats Co., Ltd., Japan; Nissan Motor Co., Ltd.
SO Jpn. Tokkyo Koho, 3 pp.
CODEN: JAXXAD
DT Patent
LA Japanese
IC C06D005-06
ICA A62B035-00
CC 50-1 (Propellants and Explosives)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 57042598	B4	19820909	JP 1974-61505	19740531
PRAI JP 1974-61505		19740531		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 57042598	IC	C06D005-06
	ICA	A62B035-00

AB Al2O3, MgO, or SiO2 is coated with an inorg. salt (e.g., MgCl2, NH4Cl) and used for cooling and removal of harmful materials in a gas generator for automobile safety bag inflation. Thus, a 75:25 NaN3-KClO4 mixt. was put into a **propellant** chamber in a 2-chamber cylindrical vessel, while MgCl2-coated Al2O3 (300-2000 μ) was charged into another chamber. When the **propellant** was ignited, a hot gas together with harmful Na2O at ~2000° was produced. The gas was cooled, and the Na2O was also converted to NaCl by the MgCl2-coated Al2O3.

ST alumina coolant **propellant** gas generator; safety air bag **propellant** automobile

IT Safety devices
(air bags, **propellants** for automotive, contg. magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)

IT Cooling agents
(alumina, magnesium **chloride**-coated, for **azide**-perchlorate air bag **propellants**)

IT Gases
(generation of, for automobile air bag inflation, magnesium **chloride**-coated alumina in, for cooling and sodium oxide conversion)

IT **Propellants**
(sodium **azide**, contg. potassium perchlorate, for automobile air bag inflation, with magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)

IT 7786-30-3, uses and miscellaneous
RL: USES (Uses)
(alumina coated with, in **azide**-perchlorate air bag **propellant**, for cooling and sodium oxide conversion)

IT 1313-59-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(conversion of, in gas-generating **propellants** for automobile air bags, by magnesium **chloride**-coated alumina)

IT 1344-28-1, uses and miscellaneous
RL: USES (Uses)
(magnesium **chloride**-coated, in **azide**-perchlorate automobile air bag **propellants** for cooling and sodium oxide conversion)

IT 26628-22-8
RL: USES (Uses)
(**propellants**, for automotive air bag inflation, contg. magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)

IT 7778-74-7
RL: USES (Uses)
(**propellants**, sodium **azide**, for automotive air bag inflation, with magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)

L4 ANSWER 55 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1981:483094 CAPLUS
DN 95:83094
ED Entered STN: 12 May 1984
TI Gas generant **propellants**
IN Reed, Russell, Jr.; Lee, Benjamin Y. S.; Henry, Ronald A.
PA USA
SO U. S. Pat. Appl., 14 pp. Avail. NTIS Order No. PAT-APPL-196 893.
CODEN: XAXXAV
DT Patent
LA English
CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 28
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 196893	A0	19810508	US 1980-196893	19801014

US 4358327 A 19821109
PRAI US 1980-196893 19801014
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 196893	NCL	149/019.400; 149/019.600; 149/088.000; 149/092.000

AB A gas-generating compn. is prepd. whose flame temp. is sufficiently low (1000-1400°F) for using it to inflate rubber and plastic devices. The gas generated is N2. An uncured binder compn. of a polyethylene glycol capped polypropylene glycol and a dihydroxytetrazole is prepd. The biuret trimer of hexamethylene diisocyanate is added as a curative agent. A plasticizer, coolant, and a deflagrating agent are added. Thus, bis(hydroxyethyl)tetrazole, a polyethylene-polypropylene glycol, hexamethylene diisocyanate biuret trimer, 1-methyl-5-(methoxyethyl)-1H-tetrazole, ammonium salt of 5-nitraminotetrazole, and oxamide were compounded for making a compn. that had a flame temp. of 1384 and 694K in the chamber and exhaust. Without oxamide the resp. temps. were 1794 and 1002 K.

ST nitrogen generating **propellant**; hydroxytetrazole **propellant** nitrogen generation; tetrazole **propellant** nitrogen generation

IT 9003-11-6
RL: USES (Uses)
(binder, for nitrogen-generating compn.)

IT 471-46-5
RL: USES (Uses)
(coolant, in nitrogen-generating compn.)

IT 4035-89-6
RL: USES (Uses)
(curing agent, for nitrogen-generating compn.)

IT 57877-65-3 78697-36-6
RL: USES (Uses)
(deflagrating agent, for nitrogen-generating compn.)

IT 7727-37-9P, preparation
RL: PREP (Preparation)
(generation of, compn. for)

IT 78697-39-9
RL: MOA (Modifier or additive use); USES (Uses)
(plasticizer, for nitrogen-generating compn.)

IT 66012-50-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and hydroxyethylation of)

IT 78697-37-7P 78697-38-8P
RL: PREP (Preparation)
(prepn. and use in nitrogen-generating compn.)

IT 78723-01-0P
RL: PREP (Preparation)
(prepn. of and use for nitrogen-generating compn.)

IT 26628-22-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with ammonium **chloride** and bis-(cyanoethyl)ether)

IT 1656-48-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with ammonium **chloride** and sodium **azide**)

IT 12125-02-9, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bis-(cyanoethyl)ether and sodium **azide**)

IT 17587-08-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloroethanol)
IT 107-07-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with tetrazoles)

L4 ANSWER 56 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1978:25117 CAPLUS
DN 88:25117
ED Entered STN: 12 May 1984
TI Cooled gas generating solid **propellants**
IN MacSenzie, Gerald L.
PA United States Dept. of the Navy, USA
SO U. S. Pat. Appl., 13 pp. Avail. NTIS.
CODEN: XAXXAV
DT Patent
LA English
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3977924	A	19760831	US 1974-456703	19740401
	US 456703	A0	19740401		
PRAI	US 1974-456703	A	19740401		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3977924	NCL	149/019.300; 149/035.000; 149/042.000; 149/082.000; 149/083.000

AB **Azide**-based **propellants** for generating cool gases are prepd. from NaN3, a fluorocarbon polymer matrix, SiO2 combustion catalyst, and NaHCO3 or Na2C2O4 [62-76-0] as coolant. Thus, **propellants** contg. NaN3 58 (58), SiO2 3 (2), Viton A 30 (30), Na2C2O4 10 (0), and NaHCO3 0 (10%) had theor. flame (chamber) temp. 2316 (1096) and exhaust temp. 1068 (356°F), compared to 2900 (2200°F) for a control contg. 68% NaN3 and no coolant.
ST **propellant** coolant sodium salt; bicarbonate sodium **propellant** collant; oxalate sodium **propellant** coolant
IT Gases
(generation of, sodium **azide propellants** for, with sodium salt coolants)
IT Cooling agents
(sodium salts, for sodium **azide**-based gas-generating **propellants**)
IT **Propellants**
(gas-generating, sodium **azide**-based, sodium salt coolants for)
IT Rubber, synthetic
RL: USES (Uses)
(hexafluoropropene-vinylidene **fluoride**, matrix, for sodium **azide**-based gas-generating **propellants** with sodium salt coolants)
IT 62-76-0 144-55-8, uses and miscellaneous
RL: USES (Uses)
(cooling agents, for sodium **azide**-based gas-generating **propellants**)
IT 9011-17-0
RL: USES (Uses)

(rubber, matrix for sodium **azide**-based gas-generating **propellants** with sodium salt coolants)

L4 ANSWER 57 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1976:579852 CAPLUS
DN 85:179852
ED Entered STN: 12 May 1984
TI Coolant additives for nitrogen-generating solid **propellants**
IN McCulloch, Charles R.; MacKenzie, Gerald L.
PA United States Dept. of the Navy, USA
SO U.S., 4 pp.
CODEN: USXXAM
DT Patent
LA English
IC C06B045-10
INCL 149019300
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3977924		19760831	US 1974-456703	19740401

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3977924	IC	C06B045-10
	INCL	149019300
US 3977924	NCL	149/019.300; 149/035.000; 149/042.000; 149/082.000; 149/083.000

AB **Propellants** generating cooled N gas for safety device inflation are prepd. from **azides** and alkali metal acid salt coolants in a polymeric **propellant** matrix. The coolant decreases the flame temp., maintains the desired level of gases, and reacts with F to render it inert. Thus, a compn. contg. NaN3 58, SiO2 2, NaHCO3 10, and Viton A 30%, on combustion, has chamber and exhaust temps. of 1096 and 356°F, resp., whereas a similar compn. with 68% NaN3 and no NaHCO3 shows 2900 and 2200°F, resp.

ST nitrogen **propellant** carbonate coolant

IT Rubber, synthetic
(hexafluoropropene-vinylidene **fluoride**, **propellants** contg. **azides** and bicarbonate coolants, for safety device inflation)

IT Safety devices
(inflation of, **azide** nitrogen-generating **propellants** contg. bicarbonate coolants for)

IT **Propellants**
(nitrogen-generating, contg. sodium bicarbonate coolant, for safety device inflation)

IT 144-55-8, uses and miscellaneous
RL: USES (Uses)
(cooling agents, for **azide propellants** for nitrogen generation for safety device inflation)

IT 7727-37-9P, preparation
RL: PREP (Preparation)
(generation of, for safety device inflation, **azide propellants** contg. bicarbonate coolants for)

IT 9011-17-0
RL: USES (Uses)
(rubber, **propellants** contg. **azides** and bicarbonate

coolants, for safety device inflation)

L4 ANSWER 59 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1976:107998 CAPLUS
DN 84:107998
ED Entered STN: 12 May 1984
TI Reduction of toxicity of **propellant** gas
IN Kasama, Tsuneo; Shimizu, Haruaki; Fujiyama, Hikaru; Nagaoka, Tadahiko
PA Nippon Oils & Fats Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC B01J; B01D
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 50075966	A2	19750621	JP 1973-123699	19731102
PRAI JP 1973-123699	A	19731102		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 50075966	IC	B01JIC B01D

AB B or Si, H3BO3, SiO2, MgCl2 [7786-30-3], C2Cl6, PVC, and(or) NH4ClO4 are used to reduce the toxicity of gas generated from NaN3 [26628-22-8]-KClO4 [7778-74-7] mixts. for air bags. Thus, when gas generated from a compn. of 100 parts of 75:25 NaN3-KClO4 and 40 parts MgCl2 was bubbled through water, the water had pH 7, compared with 11 for a similar test without MgCl2.
ST air bag gas treatment; sodium **azide** combustion gas; toxicity reduction **propellant** gas
IT Safety devices
(air bags, **propellants** for, contg. magnesium **chloride** for toxic gas prevention)
IT Poisons
(gases, from air bag inflation, **propellants** contg. magnesium **chloride** for preventing)
IT Gases
(generation of, for air bag inflation, **propellants** contg. magnesium **chloride** for toxicity redn. in)
IT Bags
(inflatable air, **propellants** for, contg. magnesium **chloride** for toxic gas prevention)
IT **Propellants**
(potassium perchlorate-sodium **azide**, for air bag inflation, contg. magnesium **chloride** for toxic gas prevention)
IT 7786-30-3, uses and miscellaneous
RL: USES (Uses)
(in **propellants**, for toxic gas prevention in air bag inflation)
IT 7778-74-7 26628-22-8
RL: USES (Uses)
(**propellants**, contg. magnesium **chloride** for toxic gas prevention in air bag inflation)

L4 ANSWER 61 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1975:482290 CAPLUS
DN 83:82290
ED Entered STN: 12 May 1984
TI Nontoxic, noncorrosive, odorless gas generating composition
IN Lundstrom, Norman H.
PA Thiokol Chemical Corp., USA
SO U.S., 5 pp.
CODEN: USXXAM
DT Patent
LA English
IC B60R; C06D
INCL 149035000
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3865660	A	19750211	US 1973-340422	19730312
PRAI	US 1973-340422	A	19730312		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3865660	IC	B60RIC C06D
	INCL	149035000
US 3865660	NCL	149/035.000; 149/016.000; 252/183.140; 280/741.000; 422/167.000; 423/351.000; 423/410.000

AB A gas-generating compn. useful for inflating passenger-vehicle protective crash bags contains 55.18 wt. % NaN3 [26628-22-8] and 44.82% anhyd. CrCl3 [10025-73-7]. To this mixt. is added 9% Al2O3 [1344-28-1], resulting in a heat sink that lowers the temp. of the resulting N [7727-37-9] from 1007 to 639°F. LiN3 [19597-69-4] also is used in place of NaN3.

ST safety bag gas generation; nitrogen generation safety bag; automobile crash bag gas generator; **azide** chromium **chloride** nitrogen generator; alumina coolant nitrogen safety bag

IT **Propellants**
(**azide**-chromium **chloride**, nitrogen-generating, for automotive safety bags)

IT Safety devices
(bags, for vehicles, nitrogen-generating compns. for inflating)

IT Bags
(inflatable safety, for vehicles, nitrogen-generating compns. for)

IT 1344-28-1, uses and miscellaneous
RL: USES (Uses)
(cooling agents, for nitrogen generated for vehicle crash bags)

IT 7727-37-9P, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, from **azides** and chromium **chloride** for inflating vehicle crash bags)

IT 19597-69-4
RL: USES (Uses)
(nitrogen-generating compn. from chromium **chloride** and, for vehicle crash bags)

IT 10025-73-7
RL: USES (Uses)
(nitrogen-generating compns. from **azides** and, for vehicle safety bags)

IT 26628-22-8
RL: USES (Uses)
(nitrogen-generating compns. from chromium **chloride** and, for

vehicle safety bags)

L4 ANSWER 62 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1974:61717 CAPLUS
DN 80:61717
ED Entered STN: 12 May 1984
TI Composition for inflation of safety bags in vehicles
IN Brennan, Richard L.; Lane, George A.
PA Dow Chemical Co.
SO Fr. Demande, 7 pp.
CODEN: FRXXBL
DT Patent
LA French
IC C06C; B60R
CC 50-3 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2160411	A1	19730629	FR 1972-39734	19721109
	FR 2160411	B1	19741004		
	CA 981465	A1	19760113	CA 1972-154470	19721023
	NL 7215390	A	19730521	NL 1972-15390	19721114
	JP 48058267	A2	19730815	JP 1972-113569	19721114
	DE 2256254	A1	19730524	DE 1972-2256254	19721116
	ES 408648	A1	19751101	ES 1972-408648	19721116
	GB 1417022	A	19751210	GB 1972-52994	19721116
	US 4157648	A	19790612	US 1975-586457	19750612
PRAI	US 1971-199808	A	19711117		
	US 1973-358188	A1	19730507		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
FR 2160411	IC	C06CIC B60R
US 4157648	NCL	060/205.000; 149/035.000; 423/351.000

AB Mixts. of **azides**, **halides**, and a primer are capable of inflating, upon reaction, a 10-gal car-collision bag to 20 psi in 30 msec. The general reaction is nAN3 + MXn → nAX + 3n/2N2 + M, in which A is an alkali metal, X is a halogen atom, n is an integer, and M is a metal whose **azide** is nontoxic because of the possibility of the secondary reaction nAN3 + MXn → nAX + M(N3)n. Preferred reactants are SnCl2, AlCl3, FeCl2, and TiCl in amts. 10% above stoichiometric and NaN3, LiN3, or KN3.

ST collision bag inflation **azide**; **halide azide** reaction; safety collision bag inflation

IT Safety devices
(air bags, **azide-chloride propellants** for automotive)

IT **Propellants**
(**azide-chloride**, for automotive safety bags)

IT **Chlorides**, uses and miscellaneous
RL: USES (Uses)
(**propellants**, contg. **azides** for automotive safety bags)

IT 7446-70-0, uses and miscellaneous 7699-45-8 7705-08-0, uses and miscellaneous 7772-99-8 7786-30-3, uses and miscellaneous 10241-04-0 10476-85-4
RL: USES (Uses)
(**propellants**, contg. **azides** for automotive safety bags)

IT 19597-69-4 20762-60-1 22750-57-8 22756-36-1 26628-22-8
RL: USES (Uses)
(**propellants**, contg. **chlorides** for automotive safety bags)

L4 ANSWER 63 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Full Text | Citing References

AN 1973:506512 CAPLUS
DN 79:106512
ED Entered STN: 12 May 1984
TI Low-temperature, nitrogen gas-generating composition
IN Hendrickson, Roger R.; Munson, William O.; Reed, Russell; Shaw, Graham C.
PA Thiokol Chemical Corp.
SO U.S., 5 pp.
CODEN: USXXAM
DT Patent
LA English
IC F16P; B60R
INCL 280150000AB
CC 49-1 (Industrial Inorganic Chemicals)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3741585	A	19730626	US 1971-158108	19710629
	JP 57013485	B4	19820317	JP 1973-83502	19730723
PRAI	US 1971-158108		19710629		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3741585	IC	F16PIC B60R
	INCL	280150000AB
US 3741585	NCL	280/741.000; 053/434.000; 149/035.000; 252/183.140; 252/372.000; 423/351.000; 423/410.000

AB A compn. which upon ignition forms N at 1200-2000°F and is esp. useful for inflating passenger vehicle crash bags, consists of a mixt. of an alkali metal or alk. earth **azide** and a metal oxide, sulfide, or **iodide**. The preferred compn. is Na **azide** 30-70, V2O5 40-60, and MoS2 1-5%. An intimate mixt. of the materials is made and pelletized. In use, the pellets are placed in a gas generator, and ignited by a B and KNO3 hot-particle type ignition system. In an example 15.4 mmoles of gas/g material were formed and developed 16.4 psia in a 7.6-1 chamber in 0.02 sec.
ST nitrogen generation air bag inflation; **azide** decompn air bag inflation; automobile air bag inflation compn; vanadium oxide air bag inflation
IT Safety devices
(air bags, **propellants** for automotive)
IT **Propellants**
(gas-generating, for automotive air bags)
IT 507-25-5 1309-60-0 1313-27-5, uses and miscellaneous 1314-35-8 1314-62-1, uses and miscellaneous 1317-33-5 1317-37-9 2385-85-5 7704-34-9, uses and miscellaneous 26628-22-8
RL: USES (Uses)
(**propellant**, for automotive air bags)

L4 ANSWER 68 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN
Full Text | Citing References

AN 1939:62496 CAPLUS
DN 33:62496

OREF 33:8992e-g
ED Entered STN: 16 Dec 2001
TI Combustion of explosives
AU Belyaev, A. F.
SO J. Phys. Chem. (U. S. S. R.) (1938), 12, 93-99
DT Journal
LA Unavailable
CC 24 (Explosives and Explosions)
AB The combustion of secondary high explosives differs from that of **propellants** in that most secondary high explosives are appreciably volatile in the neighborhood of their ignition temps., and hence evapn. may absorb much of the mol. energy liberated at the burning face. B. therefore believes that their combustion takes place in the gas phase. The penetration of combustion from the gas phase into the condensed phase may lead to the immediate development of detonation. An exception to the theory is noted in the case of guncotton which is capable of combustion but is not noticeably volatile. Primary explosives (**azides**, etc.), in which detonation arises very readily, possess insignificant volatility, although N **chloride** is an exception, having high volatility but a small energy of activation.
IT Explosives
(combustion of secondary)
IT Detonation
(of explosives)
IT Combustion
(of explosives (secondary))

L4 ANSWER 69 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text | Citing References

AN 1939:62495 CAPLUS
DN 33:62495
OREF 33:8992e-g
ED Entered STN: 16 Dec 2001
TI Combustion of explosives
AU Belyaev, A. F.
SO Acta Physicochimica URSS (1938), 8, 763-72
CODEN: ACPYAR; ISSN: 0365-1460
DT Journal
LA English
CC 24 (Explosives and Explosions)
AB The combustion of secondary high explosives differs from that of **propellants** in that most secondary high explosives are appreciably volatile in the neighborhood of their ignition temps., and hence evapn. may absorb much of the mol. energy liberated at the burning face. B. therefore believes that their combustion takes place in the gas phase. The penetration of combustion from the gas phase into the condensed phase may lead to the immediate development of detonation. An exception to the theory is noted in the case of guncotton which is capable of combustion but is not noticeably volatile. Primary explosives (**azides**, etc.), in which detonation arises very readily, possess insignificant volatility, although N **chloride** is an exception, having high volatility but a small energy of activation.
IT Explosives
(combustion of secondary)
IT Detonation
(of explosives)
IT Combustion
(of explosives (secondary))

```
=> file stnguide
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    78.51     129.39

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                   -12.41     -19.71

FILE 'STNGUIDE' ENTERED AT 08:47:58 ON 31 OCT 2005
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE
AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Oct 28, 2005 (20051028/UP).

=>
```